Test Report

Product Name	Secured Network Extension Device
Model No.	FEV-211F, FEV-212F, FEV-211F-AM, FEV-212F-AM (Main model) (for detail model no. refer to section 1.1 EUT Description)
FCC ID	TVE-3317E142
Contains FCC ID	N7NEM75, N7NEM75S

Applicant	Fortinet, Inc.
Address	899 Kifer Road Sunnyvale California United States 94086

Date of Receipt	Jun. 14, 2022
Issued Date	Jun. 20, 2023
Report No.	2260415R-RFUSWL5V01-A
Report Version	V1.0

Testing Laboratory
3023

The test results relate only to the samples tested.
The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.
This report must not be used to claim product endorsement by TAF or any agency of the government.
The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.
Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test Report

Product Name	Secured Network Extension Device
Applicant	Fortinet, Inc.
Address	899 Kifer Road Sunnyvale California United States 94086
Manufacturer	Fortinet, Inc.
Model No.	FEV-211F, FEV-212F, FEV-211F-AM, FEV-212F-AM (Main model) (for detail model no. refer to section 1.1 EUT Description)
FCC ID	TVE-3317E142
Contains FCC ID	N7NEM75, N7NEM75S
EUT Rated Voltage	DC 7-36Vdc (from Car Charger) AC 100-240Vdc (from Power Adapter)
EUT Test Voltage	DC 36V (from Car Charger), AC 120V / 60Hz (from Power Adapter)
Trade Name	Fortinet
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E ANSI C63.4: 2014, ANSI C63.10: 2013 KDB Publication 789033
Test Result	Complied

Documented By : Genie Chang

(Senior Project Specialist / Genie Chang)

Tested By : Ivan Chuang

(Senior Engineer / Ivan Chuang)

Approved By : Jack Hsu

(Senior Engineer / Jack Hsu)

TABLE OF CONTENTS

Revision History

Report No.	Version	Description	Issued Date
2260415R-RFUSWL5V01-A	V1.0	Initial issue of report.	Jun. 20, 2023

1. General Information

1.1. EUT Description

Product Name	Secured Network Extension Device
Trade Name	Fortinet
Model No. (Main model)	FEV-211F, FEV-212F FEV-211F-AM, FEV-212F-AM
Model No. (Series model)	FortiExtenderVehicle 211Fxxxxxxxxxx FORTIEXTENDERVEHICLE-211Fxxxxxxxxxx FEV-211Fxxxxxxxxxx FortiExtenderVehicle 212Fxxxxxxxxxx FORTIEXTENDERVEHICLE-212Fxxxxxxxxxx FEV-212Fxxxxxxxxxx FortiExtenderVehicle 211F-AMxxxxxxxxxx FORTIEXTENDERVEHICLE-211F-AMxxxxxxxxxx FEV-211F-AMxxxxxxxxxx FortiExtenderVehicle 212F-AMxxxxxxxxxx FORTIEXTENDERVEHICLE-212F-AMxxxxxxxxxx FEV-212F-AMxxxxxxxxxx (where “x” can be used “A-Z”, or “0-9”, or “-“, or blank for software purposes or marketing purposes only)
FCC ID	TVE-3317E142
Contains FCC ID	N7NEM75, N7NEM75S
Frequency Range	802.11a/n/ac-20 MHz: 5180-5240 MHz, 5745-5825 MHz 802.11n/ac-40 MHz: 5190-5230 MHz, 5755-5795 MHz 802.11ac-80 MHz: 5210 MHz, 5775 MHz
Number of Channels	802.11a/n/ac-20MHz: 9 CH, 802.11n/ac-40MHz: 4 CH, 802.11ac-80MHz: 2 CH
Data Rate	802.11a: 6-54 Mbps, 802.11n: MCS0-MCS15, 802.11ac: MCS0-MCS9
Type of Modulation	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Channel Control	Auto
Car Charger	MFR: HUAI YANG CO., LTD M/N: FEVCBL-2M3-C Internal M/N: HWR-SH-20230116-01

Power Adapter	MFR: APD, M/N: WA-36W12R Input: 100-240V~50-60Hz, 0.9A Output: 12.0V⎓3.0A, 36.0W Cable Out: Non-shielded, 1.5m

Note: The different models name are for the market segment.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	ADVANCED WIRELESS & ANTENNA INC.	A8EEE-000003	Dipole	2.0 dBi for 2.4 GHz (BLE)
2	ADVANCED WIRELESS & ANTENNA INC.	A8EEE-000002 (Main)	Dipole	3.5 dBi for 2.4 GHz (WLAN) 5.5 dBi for 5GHz (WLAN)
		A8EEE-000002 (Aux)		3.5 dBi for 2.4 GHz (WLAN) 5.5 dBi for 5GHz (WLAN)
3	Master Wave Technology Co., Ltd.	98619PRSX018 (Main)	Dipole	3.19 dBi for 2.4 GHz (WLAN) 5.85 dBi for UNII-1, 2A (WLAN) 5.73 dBi foe UNII-2C (WLAN) 5.03 dBi for UNII-3 (WLAN)
		98619PRSX018 (Aux)		3.19 dBi for 2.4 GHz (WLAN) 5.85 dBi for UNII-1, 2A (WLAN) 5.73 dBi foe UNII-2C (WLAN) 5.03 dBi for UNII-3 (WLAN)
4	SENAO	MA1505.AK.008 (5 in 1, cable 5M)	PIFA	1.99 dBi for WCDMA Band 2 2.64 dBi for WCDMA Band 4 0.86 dBi for WCDMA Band 5 1.99 dBi for LTE Band 2 2.64 dBi for LTE Band 4 0.86 dBi for LTE Band 5 1.23 dBi for LTE Band 7 -2.09 dBi for LTE Band 12 -1.98 dBi for LTE Band 13 -0.04 dBi for LTE Band 14 0.86 dBi for LTE Band 26 -0.91 dBi for LTE Band 30 1.23 dBi for LTE Band 41 -0.31 dBi for LTE Band 48 2.64 dBi for LTE Band 66

5	SENAO	MA1505.AK.008 (5 in 1, cable 0.3M)	PIFA	3.98 dBi for WCDMA Band 2 5.22 dBi for WCDMA Band 4 1.83 dBi for WCDMA Band 5 3.98 dBi for LTE Band 2 5.22 dBi for LTE Band 4 1.83 dBi for LTE Band 5 4.85 dBi for LTE Band 7 1.50 dBi for LTE Band 12 3.03 dBi for LTE Band 13 3.03 dBi for LTE Band 14 1.83 dBi for LTE Band 26 0.84 dBi for LTE Band 30 4.85 dBi for LTE Band 41 -0.07 dBi for LTE Band 48 5.22 dBi for LTE Band 66

Note: The above EUT information is declared by the manufacturer.

Directional gain for CDD Power	Directional gain for Beamforming Power
5.85 dBi for 5150-5250 MHz 5.50 dBi for 5725-5850 MHz	8.86 dBi for 5150-5250 MHz 8.51 dBi for 5725-5850 MHz

For CDD mode:

5150 MHz-5250 MHz: Directional Gain = 5.85 dBi

5725 MHz-5850 MHz: Directional Gain = 5.50 dBi

(Directional Gain = $G_{ANT\ MAX}$ + Array Gain, Array Gain = 0 dB for $N_{ANT} \leq 4$)

For Beamforming mode:

5150 MHz-5250 MHz: Directional Gain = 8.86 dBi

5725 MHz-5850 MHz: Directional Gain = 8.51 dBi

Directional Gain = $G_{ANT\ MAX}$ + Array Gain, Array Gain = 10*log(2) = 3.01 dB)

Directional gain for PSD
8.86 dBi for 5150-5250 MHz 8.51 dBi for 5725-5850 MHz

5150 MHz-5250 MHz: Directional Gain = 8.86 dBi

5725 MHz-5850 MHz: Directional Gain = 8.51 dBi

Directional Gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}]$ dBi

802.11a/n/ac-20 MHz Center Working Frequency of Each Channel:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	40	5200	44	5220	48	5240
149	5745	153	5765	157	5785	161	5805
165	5825	--	--	--	--	--	--

802.11n/ac-40 MHz Center Working Frequency of Each Channel:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230	151	5755	159	5795

802.11ac-80 MHz Center Working Frequency of Each Channel:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	155	5775	--	--	--	--

Note:

1. This device is a Secured Network Extension Device with built-in Bluetooth V5.2, Wi-Fi and WWAN transceiver, this report is for 5GHz Wi-Fi UNII-1 and UNII-3.
2. The different of each model is shown as below:

Model No.	Description
FEV-211F Series	Bluetooth + Wi-Fi + LTE module x1 (EM7565) Contains LTE module's FCC ID (N7NEM75)
FEV-212F Series	Bluetooth + Wi-Fi + LTE module x2 (EM7565) Contains LTE module's FCC ID (N7NEM75)
FEV-211F-AM Series	Bluetooth + Wi-Fi + LTE module x1 (EM7511) Contains LTE module's FCC ID (N7NEM75S)
FEV-212F-AM Series	Bluetooth + Wi-Fi + LTE module x2 (EM7511) Contains LTE module's FCC ID (N7NEM75S)

3. The identification of test sample is FEV-212F-AM with A8EEE-000003, MA1505.AK.008 (5 in 1, cable 0.3M) and 98619PRSX018 antenna for UNII-1 testing, and with A8EEE-000002 antenna for UNII-3 testing.
4. The radiation measurements are performed in X, Y and Z axis positioning, and only the worst case is shown in the report.
5. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
6. Lowest data rates are tested in each mode. Only worst case is shown in the report. (802.11a is 6 Mbps、802.11ac-20 MHz / 40 MHz / 80 MHz is MCS0)
7. The CDD mode and Beamforming mode are presented in the power output test item. For other test items, CDD mode is the worst case for the final test and shown in this report.
8. For outdoor mode, only perform Conducted Output Power and Power Spectral Density, and other test items were covered by indoor mode.

9. After evaluation and investigation, the worst case for Power Adapter and Car Charger is Power Adapter, so it was used to perform all testing and record in the test report.
10. The spectrum plot against conducted item only shows the worst case.
11. These tests were conducted on a sample for the purpose of demonstrating compliance of 802.11a/n/ac transmitter with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.

Test Mode	Transmit (802.11a-CDD) Transmit (802.11ac-20 MHz-CDD) Transmit (802.11ac-40 MHz-CDD) Transmit (802.11ac-80 MHz-CDD) Transmit (802.11ac-20 MHz-Beamforming) Transmit (802.11ac-40 MHz-Beamforming) Transmit (802.11ac-80 MHz-Beamforming) Transmit (802.11a-CDD)_Outdoor Transmit (802.11ac-20 MHz-CDD)_Outdoor Transmit (802.11ac-40 MHz-CDD)_Outdoor Transmit (802.11ac-80 MHz-CDD)_Outdoor Transmit (802.11ac-20 MHz-Beamforming)_Outdoor Transmit (802.11ac-40 MHz-Beamforming)_Outdoor Transmit (802.11ac-80 MHz-Beamforming)_Outdoor

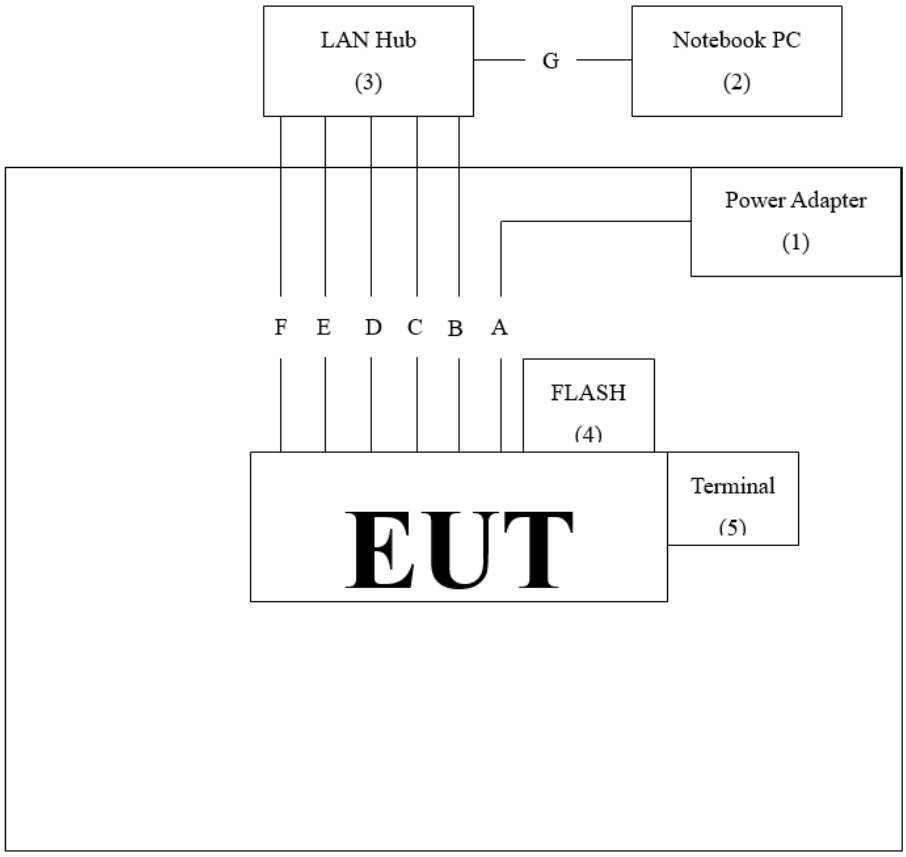
1.2. Tested System Datails

The types for all equipment, plus descriptions of all cables used in the tested system are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Power Adapter	APD	WA-36W12R	N/A	N/A
2	Notebook PC	DELL	Latitude 5501	4H94P13	N/A
3	LAN Hub	TP-LINK	TL-SG108	2161597000480	Non-Shielded, 1.5m
4	FLASH	Kingston	DT100G3/8GB	N/A	N/A
5	Terminal	N/A	N/A	N/A	N/A

Signal Cable Type		Signal cable Description
A	Power Cable	Non-Shielded, 1.5m
B	LAN Cable	Non-Shielded, 3m
C	LAN Cable	Non-Shielded, 2m
D	LAN Cable	Non-Shielded, 2m
E	LAN Cable	Non-Shielded, 2m
F	LAN Cable	Non-Shielded, 2m
G	LAN Cable	Non-Shielded, 2m

1.3. Configuration of tested System



1.4. EUT Exercise Software

1. Setup the EUT as shown in Section 1.3.
2. Execute software “QSPR V5.0-00186” on the Notebook PC.
3. Configure the test mode, the test channel, and the data rate.
4. Press “OK” to start the continuous Transmit.
5. Verify that the EUT works properly.

1.5. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	10~40 °C	24.4 °C
	Humidity (%RH)	10~90 %	47.2 %
Radiated Emission	Temperature (°C)	10~40 °C	24.7 °C
	Humidity (%RH)	10~90 %	58.2 %
Conductive	Temperature (°C)	10~40 °C	25.0 °C
	Humidity (%RH)	10~90 %	55.8 %

USA	:	FCC Registration Number: TW0033
Canada	:	CAB Identifier Number: TW3023 / Company Number: 26930
Site Description	:	Accredited by TAF Accredited Number: 3023
Test Laboratory	:	DEKRA Testing and Certification Co., Ltd
Address	:	No. 5-22, Ruishukeng Linkou District, New Taipei City, 24451, Taiwan
Performed Location	:	No. 26, Huaya 1st Rd., Guishan Dist.,Taoyuan City 333411, Taiwan, R.O.C.
Phone Number	:	+886-3-275-7255
Fax Number	:	+886-3-327-8031
Email Address	:	info.tw@dekra.com
Website	:	http://www.dekra.com.tw

1.6. List of Test Equipment

For Conduction Measurements / HY-SR01

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
V	EMI Test Receiver	R&S	ESR7	101601	2022.06.23	2023.06.22
V	Two-Line V-Network	R&S	ENV216	101306	2022.05.23	2023.05.22
V	Coaxial Cable	SUHNER	RG400_BNC	RF001	2021.09.08	2022.09.07

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with "V" are used to measure the final test results.
3. Test Software Version: AUDIX e3 V9.

For Conducted Measurements / HY-SR02

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
V	Spectrum Analyzer	R&S	FSV30	103466	2021.12.27	2022.12.26
V	Power Meter	Anritsu	ML2496A	1739004& 1726078& 1726079	2022.05.06	2023.05.05

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with "V" are used to measure the final test results.
3. Test Software Version: RF Conducted Test Tools R3 V3.0.1.19.

For Radiated Measurements / HY-CB03

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
V	Loop Antenna	AMETEK	HLA6121	49611	2022.03.18	2023.03.17
V	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-675	2021.08.11	2023.08.10
V	Horn Antenna	ETS-Lindgren	3117	00227700	2021.10.12	2022.10.11
V	Horn Antenna	Com-Power	AH-840	101100	2021.10.04	2023.10.03
V	Pre-Amplifier	SGH	0301	20211007-10	2022.02.22	2023.02.21
V	Pre-Amplifier	EMCI	EMC051835SE	980313	2021.11.24	2022.11.23
V	Pre-Amplifier	EMCI	EMC05820SE	980309	2021.09.27	2022.09.26
V	Pre-Amplifier	SGH	PRAMP184	20200705	2021.08.11	2022.08.10
	Coaxial Cable	EMCI	EMC102-KM-KM-600	160312	2022.02.16	2023.02.15
	Coaxial Cable	HUBER+SUHNER	SUCOFLEX 102	MY3382/2	2022.02.16	2023.02.15
V	EMI Test Receiver	R&S	ESR3	102793	2021.12.15	2022.12.14
V	Spectrum Analyzer	R&S	FSV3044	101114	2022.02.11	2023.02.10
V	Coaxial Cable	SGH	SGH18	2021005-3	2022.03.18	2023.03.17
	Coaxial Cable	SGH	SGH18	202108-4		
	Coaxial Cable	SGH	SGH18	20110223-1		
	Coaxial Cable	SGH	HA800	GD20110222-3		

Note:
1. The test instruments marked with "V" are used to measure the final test results.
2. Test Software Version: AUDIX e3 V9.

1.7. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document.

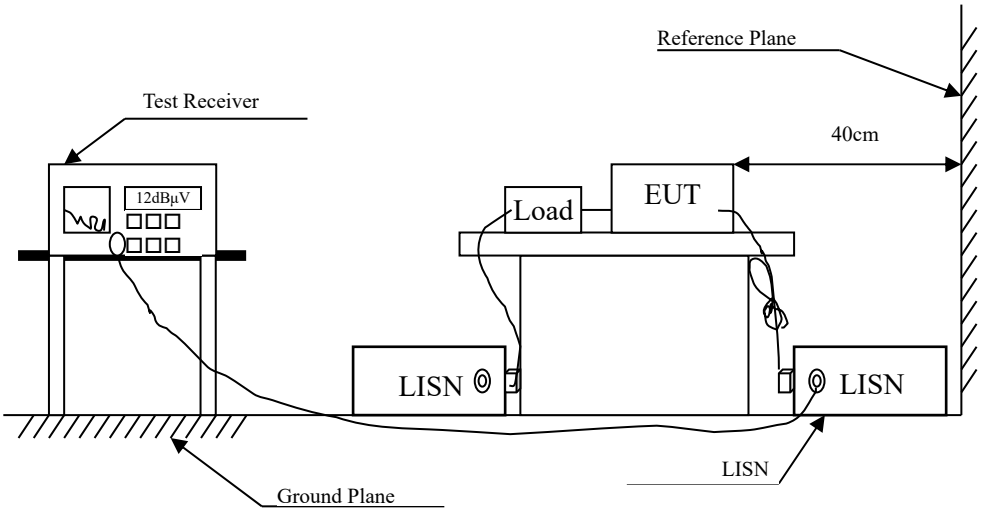
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test Item	**Uncertainty**	
Conducted Emission	±3.42 dB	
Maximun conducted output power	Power Meter ±0.89 dB	Spectrum Analyzer ±2.06 dB
Peak Power Spectral Density	±2.06 dB	
Radiated Emission	Under 1 GHz ±4.05 dB	Above 1 GHz ±3.73 dB
Band Edge	Under 1 GHz ±4.05 dB	Above 1 GHz ±3.73 dB
Occupied Bandwidth	±1544.74 Hz	
Duty Cycle	±2.31msec	

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBµV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.3. Test Procedure

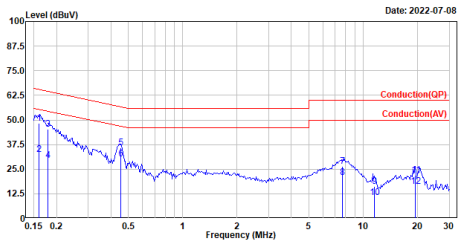
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm / 50µH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm / 50µH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4:2014 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15 MHz to 30 MHz using a receiver bandwidth of 9 kHz.

2.4. Test Result of Conducted Emission

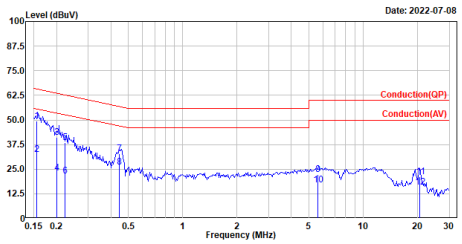
Site :HY-SR01
Condition :Line
Mode :ac80_5775MHz_TX
test by :Lucas



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.161	48.27	65.43	-17.16	38.59	9.68	QP
2	0.161	32.38	55.43	-23.05	22.70	9.68	Average
3	0.179	45.46	64.52	-19.06	35.78	9.68	QP
4	0.179	29.38	54.52	-25.14	19.70	9.68	Average
5	0.455	35.79	56.79	-21.00	26.11	9.68	QP
6	0.455	30.22	46.79	-16.57	20.54	9.68	Average
7	7.684	26.49	60.00	-33.51	15.67	10.82	QP
8	7.684	20.81	50.00	-29.19	9.99	10.82	Average
9	11.510	16.08	60.00	-43.92	5.28	10.80	QP
10	11.510	10.44	50.00	-39.56	-0.36	10.80	Average
11	19.506	21.91	60.00	-38.09	11.22	10.69	QP
12	19.506	16.40	50.00	-33.60	5.71	10.69	Average

Note:
1. Level = Read Level + Factor
2. Factor = LISN insertion loss + Cable loss
3. Over Limit = Level - Limit Line

Site :HY-SR01
Condition :Neutral
Mode :ac80_5775MHz_TX
test by :Lucas



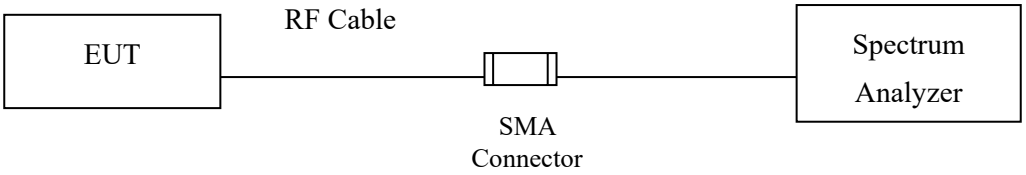
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.155	49.54	65.71	-16.17	39.88	9.66	QP
2	0.155	32.50	55.71	-23.21	22.84	9.66	Average
3	0.201	41.26	63.57	-22.31	31.60	9.66	QP
4	0.201	23.12	53.57	-30.45	13.46	9.66	Average
5	0.223	38.37	62.72	-24.35	28.71	9.66	QP
6	0.223	21.55	52.72	-31.17	11.89	9.66	Average
7	0.447	32.70	56.93	-24.23	23.04	9.66	QP
8	0.447	25.95	46.93	-20.98	16.29	9.66	Average
9	5.627	22.33	60.00	-37.67	11.51	10.82	QP
10	5.627	17.12	50.00	-32.88	6.30	10.82	Average
11	20.615	21.20	60.00	-38.80	10.44	10.76	QP
12	20.615	15.72	50.00	-34.28	4.96	10.76	Average

Note:
1. Level = Read Level + Factor
2. Factor = LISN insertion loss + Cable loss
3. Over Limit = Level - Limit Line

3. Maximun conducted output power

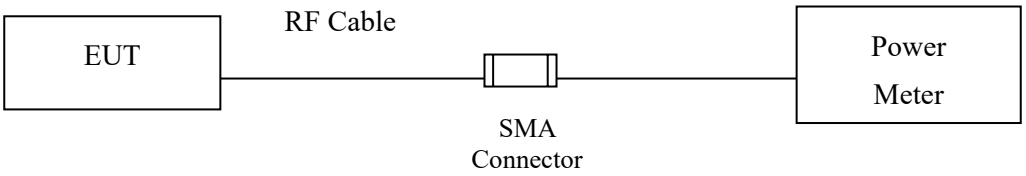
3.1. Test Setup

26dB Occupied Bandwidth

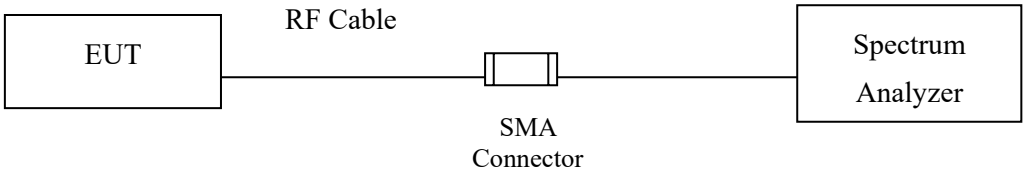


Conduction Power Measurement

Conduction Power Measurement (for 802.11an)



Conduction Power Measurement (for 802.11ac/ax)



3.2. Limits

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.150-5.250 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. provided the maximum antenna Gain does not exceed 6 dBi. If transmitting antennas of directional Gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional Gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.150-5.250 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna Gain does not exceed 6 dBi. In addition. If transmitting antennas of directional Gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional Gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.150-5.250 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-topoint U-NII devices may employ antennas with directional Gain up to 23 dBi without any corresponding reduction in the maximum conducted output power. For fixed point-to-point transmitters that employ a directional antenna Gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna Gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high Gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.150-5.250 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna Gain does not exceed 6 dBi. In addition. If transmitting antennas of directional Gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional Gain of the antenna exceeds 6 dBi.

For the 5.250-5.350 GHz and 5.470-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 99% emission bandwidth in megahertz. If transmitting antennas of directional Gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional Gain of the antenna exceeds 6 dBi.

For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition. If transmitting antennas of directional Gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional Gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional Gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high Gain directional antennas are used exclusively for fixed, point-to-point operations.

The maximum conducted output power shall be reduced by the amount in dB that the directional Gain of the antenna exceeds 6 dBi.

For CDD mode:

5150 MHz-5250 MHz: Directional Gain = 5.85 dBi, Limit= 30 dBm

5725 MHz-5850 MHz: Directional Gain = 5.50 dBi, Limit= 30 dBm

(Directional Gain = $G_{ANT\ MAX}$ + Array Gain, Array Gain = 0 dB for $N_{ANT} \leq 4$)

For Beamforming mode:

5150 MHz-5250 MHz: Directional Gain = 8.86 dBi, Limit= 27.14 dBm

5725 MHz-5850 MHz: Directional Gain = 8.51 dBi, Limit= 27.49 dBm

(Directional Gain = $G_{ANT\ MAX}$ + Array Gain, Array Gain = 10*log(2) = 3.01 dB)

3.3. Test Procedure

As an alternative to FCC KDB-789033, the EUT maximum conducted output power was measured with an average power meter employing a video bandwidth greater the 6dB BW of the emission under test. Maximum conducted output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of FCC KDB-789033, and provides more accurate measurements.

802.11an (BW≦40MHz) Maximum conducted output power using KDB 789033 section E)3)b) Method PM-G (Measurement using a gated RF average power meter)
Note: the power meter have a video bandwidth that is greater than or equal to the measurement bandwidth, (Anritsu / MA2411B video bandwidth: 65MHz)

802.11ac (BW=80MHz) Maximum conducted output power using KDB 789033 section E)2)b)
Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep).

When transmitted signals consist of two or more non-contiguous spectrum segments (e.g., 80+80 MHz mode) or when a single spectrum segment of a transmission crosses the boundary between two adjacent U-NII bands, KDB 644545 D03 section D) procedure is used for measurements.

3.4. Test Result of Maximum conducted output power

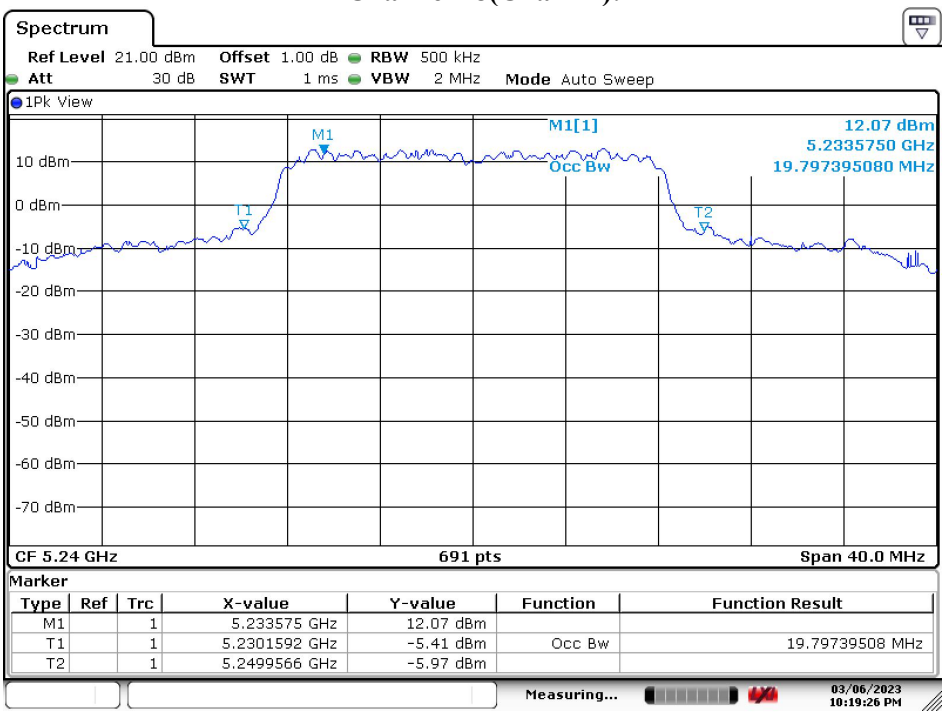
Product	:	Secured Network Extension Device
Test Item	:	Maximum conducted output power
Test Mode	:	Transmit (802.11a-CDD)
Test Date	:	2022/06/29

Maximum conducted output power Measurement:

Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
36	5180	--	16.16	16.04	19.11	30	--
44	5220	--	21.07	21.03	24.06	30	--
48	5240	--	22.63	22.98	25.82	30	--
149	5745	--	21.62	22.25	24.96	30	--
157	5785	--	23.38	22.74	26.08	30	--
165	5825	--	22.51	22.78	25.66	30	--

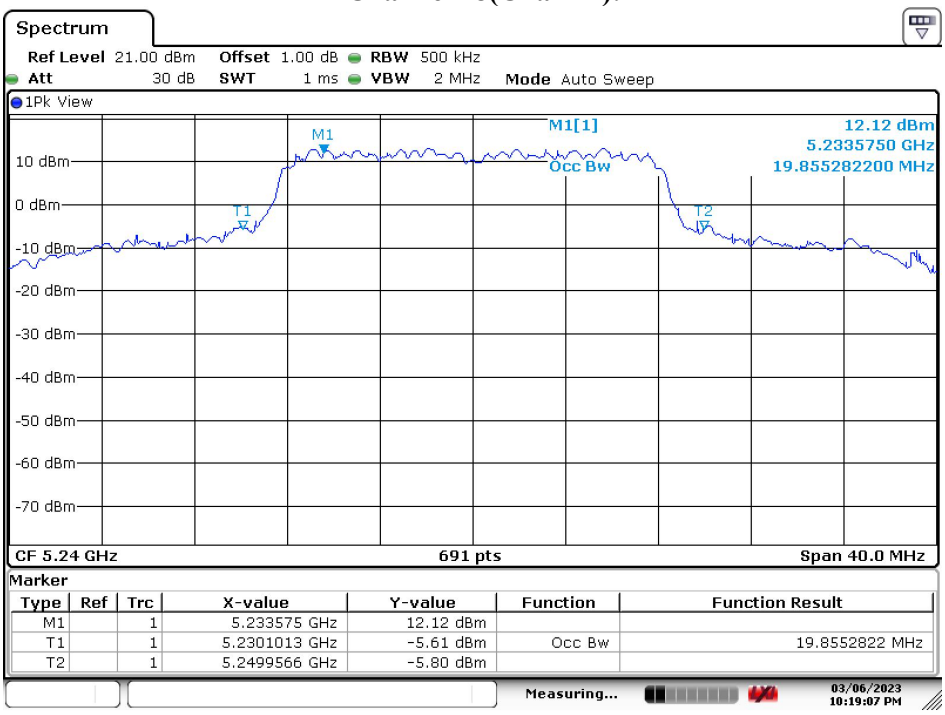
Note: Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))

Channel 48(Chain A):



Date: 6.MAR.2023 22:19:26

Channel 48(Chain B):



Date: 6.MAR.2023 22:19:07

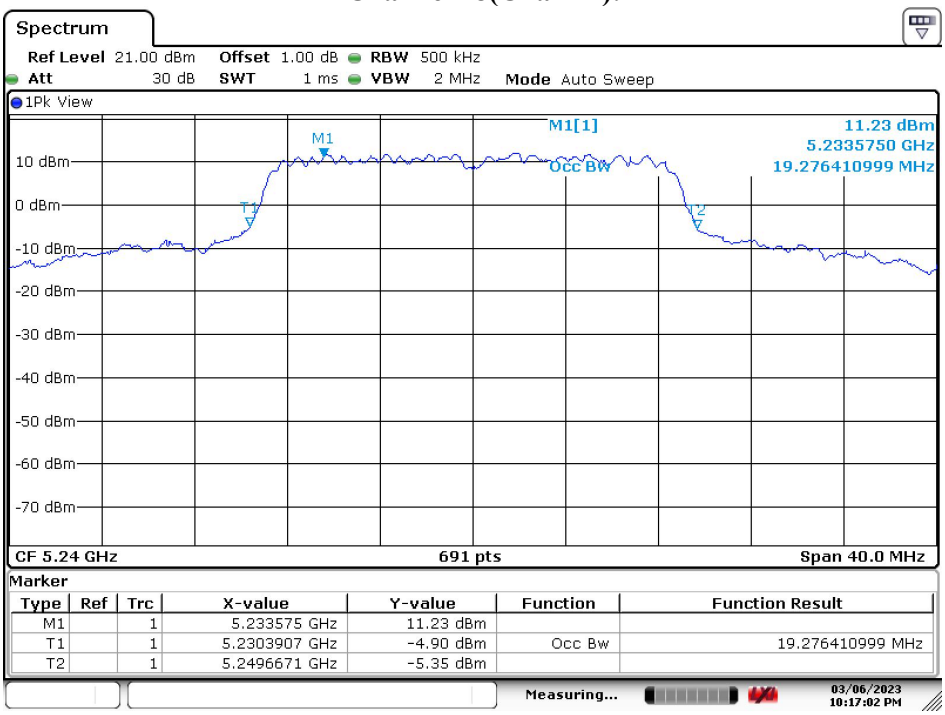
Product	:	Secured Network Extension Device
Test Item	:	Maximum conducted output power
Test Mode	:	Transmit (802.11ac-20 MHz-CDD)
Test Date	:	2022/06/29

Maximum conducted output power Measurement:

Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Duty factor (dB)	Output Power Limit	
							(dBm)	dBm+10log(BW)
36	5180	--	15.63	15.57	18.61	--	30	--
44	5220	--	21.12	21.07	24.11	--	30	--
48	5240	--	22.68	23.17	25.94	--	30	--
149	5745	--	21.08	21.61	24.36	--	30	--
157	5785	--	20.98	21.48	24.25	--	30	--
165	5825	--	20.89	21.26	24.09	--	30	--

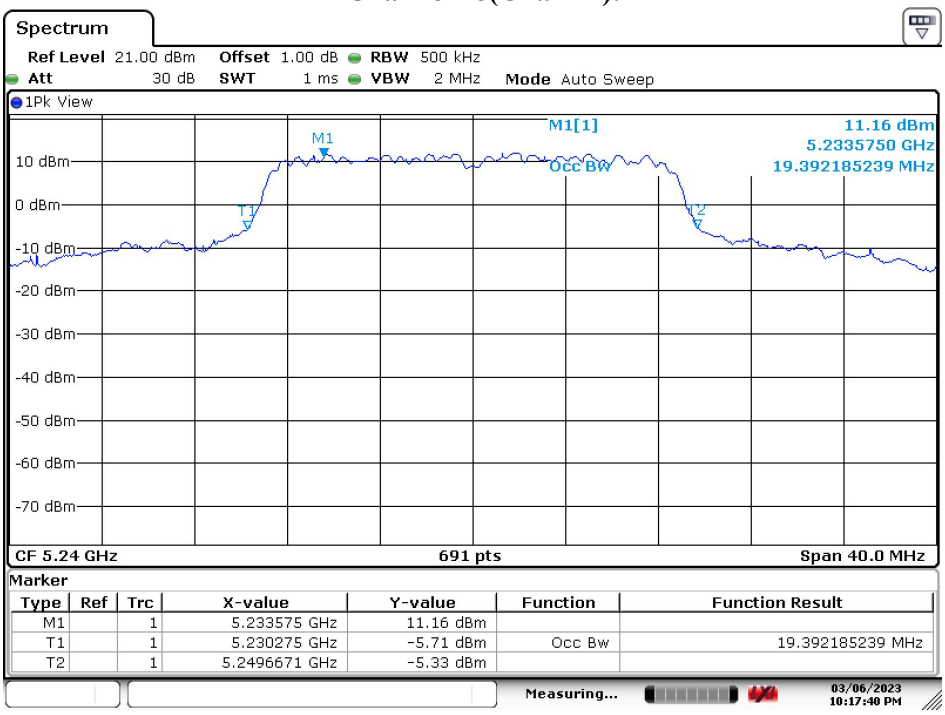
Note: Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))

Channel 48(Chain A):



Date: 6.MAR.2023 22:17:03

Channel 48(Chain B):



Date: 6.MAR.2023 22:17:41

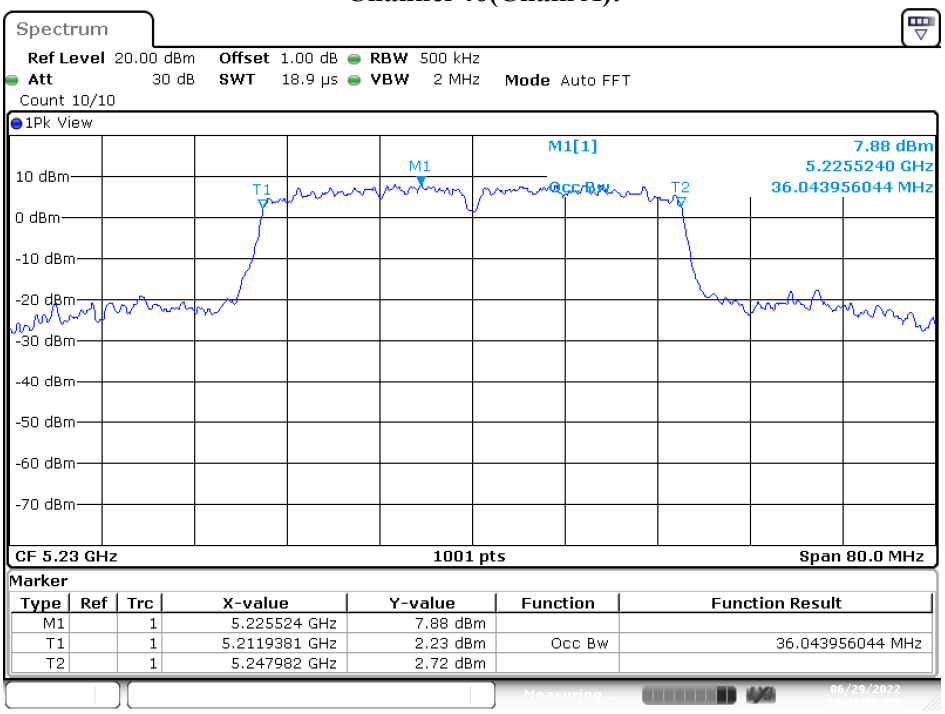
Product	:	Secured Network Extension Device
Test Item	:	Maximum conducted output power
Test Mode	:	Transmit (802.11ac-40 MHz-CDD)
Test Date	:	2022/06/29

Maximum conducted output power Measurement:

Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Duty factor (dB)	Output Power Limit (dBm)	Output Power Limit dBm+10log(BW)
38	5190	--	14.97	14.86	17.93	--	30	--
46	5230	--	19.24	19.32	22.29	--	30	--
151	5755	--	19.75	20.46	23.13	--	30	--
159	5795	--	20.65	21.39	24.05	--	30	--

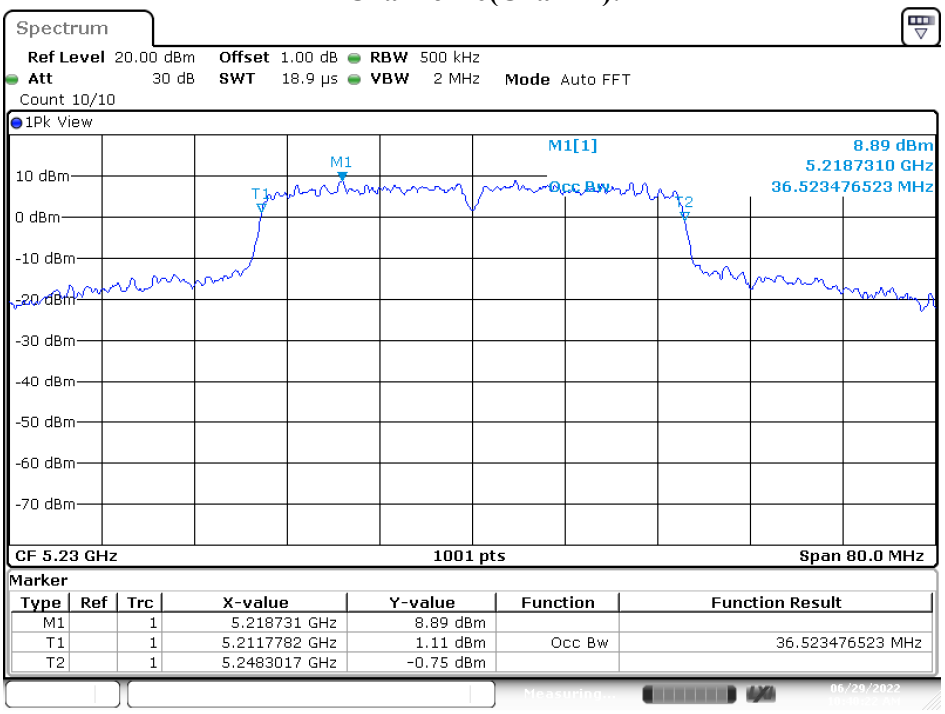
Note: Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))

Channel 46(Chain A):



Date: 29.JUN.2022 10:41:06

Channel 46(Chain B):



Date: 29.JUN.2022 10:40:22

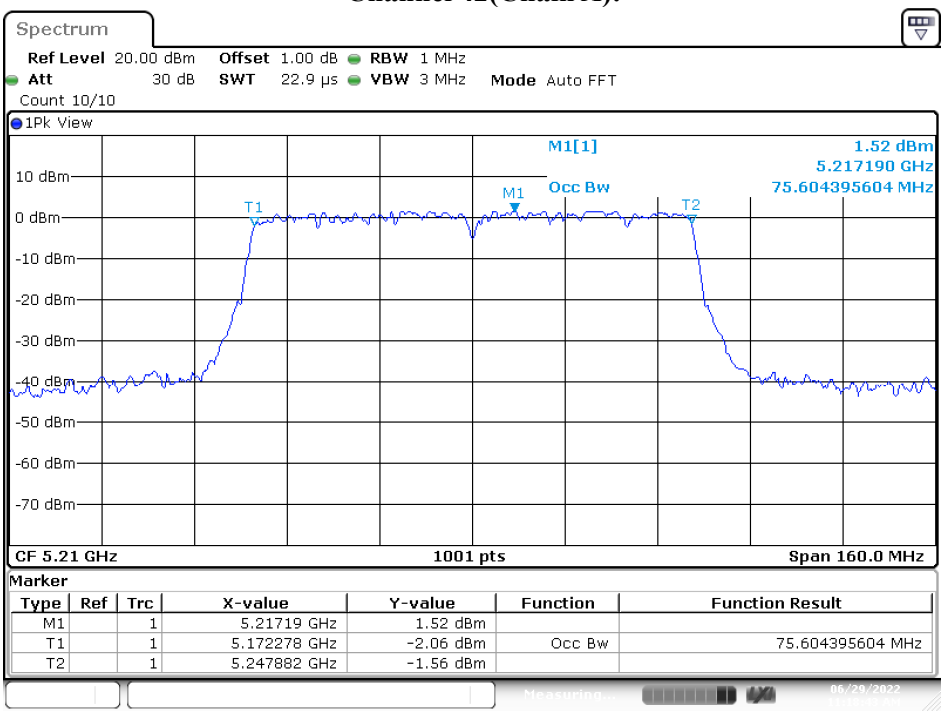
Product	:	Secured Network Extension Device
Test Item	:	Maximum conducted output power
Test Mode	:	Transmit (802.11ac-80 MHz-CDD)
Test Date	:	2022/06/30

Maximum conducted output power Measurement

Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Duty factor (dB)	Output Power Limit	
							(dBm)	dBm+10log(BW)
42	5210	--	13.06	13.18	16.13	--	30	--
155	5775	--	16.12	16.59	19.37	--	30	--

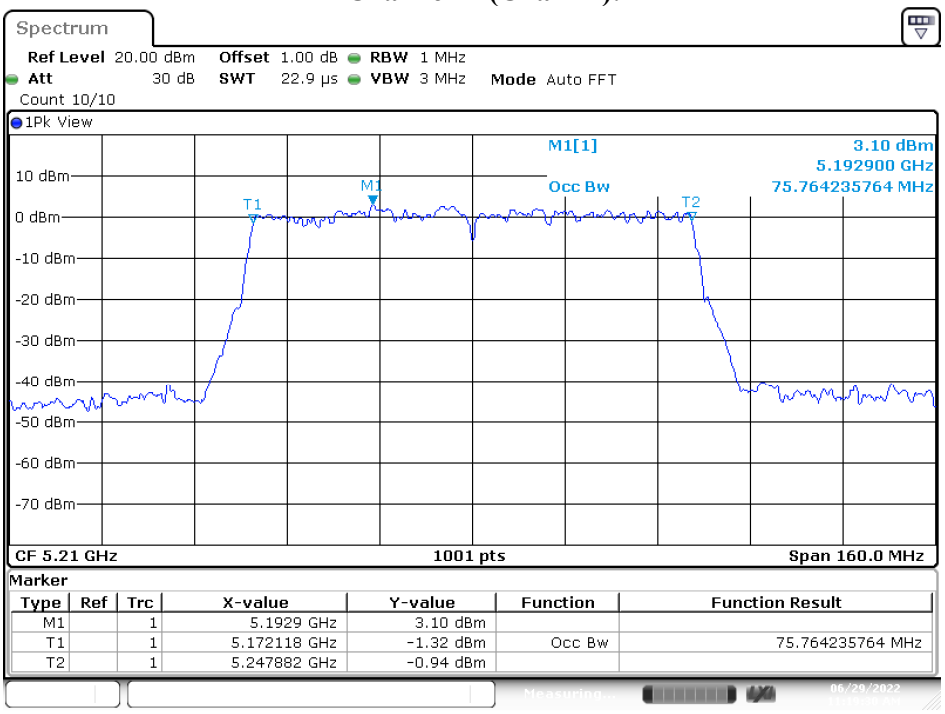
Note: Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))

Channel 42(Chain A):



Date: 29.JUN.2022 11:18:44

Channel 42(Chain B):



Date: 29.JUN.2022 11:19:30

Product : Secured Network Extension Device
Test Item : Maximum conducted output power
Test Mode : Transmit (802.11ac-20 MHz-Beamforming)
Test Date : 2022/06/29

Maximum conducted output power Measurement:

Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Duty factor (dB)	Output Power Limit	
							(dBm)	dBm+10log(BW)
36	5180	--	12.62	12.56	15.60	--	27.14	--
44	5220	--	18.11	18.06	21.10	--	27.14	--
48	5240	--	19.67	20.16	22.93	--	27.14	--
149	5745	--	18.07	18.60	21.35	--	27.49	--
157	5785	--	17.97	18.47	21.24	--	27.49	--
165	5825	--	17.88	18.25	21.08	--	27.49	--

Note: Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))

Product	:	Secured Network Extension Device
Test Item	:	Maximum conducted output power
Test Mode	:	Transmit (802.11ac-40 MHz-Beamforming)
Test Date	:	2022/06/29

Maximum conducted output power Measurement:

Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Duty factor (dB)	Output Power Limit	
							(dBm)	dBm+10log(BW)
38	5190	--	11.96	11.85	14.92	--	27.14	--
46	5230	--	16.23	16.31	19.28	--	27.14	--
151	5755	--	16.74	17.45	20.12	--	27.49	--
159	5795	--	17.64	18.38	21.04	--	27.49	--

Note: Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))

Product	:	Secured Network Extension Device
Test Item	:	Maximum conducted output power
Test Mode	:	Transmit (802.11ac-80 MHz-Beamforming)
Test Date	:	2022/06/29

Maximum conducted output power Measurement

Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Duty factor (dB)	Output Power Limit	
							(dBm)	dBm+10log(BW)
42	5210	--	10.05	10.17	13.12	--	27.14	--
155	5775	--	13.11	13.58	16.36	--	27.49	--

Note: Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))

Product	:	Secured Network Extension Device
Test Item	:	Maximum conducted output power
Test Mode	:	Transmit (802.11a-CDD)_Outdoor
Test Date	:	2022/06/29

Maximum conducted output power Measurement:

Channel No.	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	EIRP (dBm)	EIRP Limit (dBm)
36	5180	11.82	11.68	14.76	20.61	20.97
44	5220	11.75	11.69	14.73	20.58	20.97
48	5240	11.65	12.16	14.92	20.77	20.97

Note:

1. Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))
2. EIRP = Output Power + Directional Gain for CDD Power

Product	:	Secured Network Extension Device
Test Item	:	Maximum conducted output power
Test Mode	:	Transmit (802.11ac-20 MHz-CDD)_Outdoor
Test Date	:	2022/06/29

Maximum conducted output power Measurement:

Channel No.	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	EIRP (dBm)	EIRP Limit (dBm)
36	5180	11.72	11.64	14.69	20.54	20.97
44	5220	11.83	12.07	14.96	20.81	20.97
48	5240	11.59	12.15	14.89	20.74	20.97

Note:

1. Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))
2. EIRP = Output Power + Directional Gain for CDD Power

Product	:	Secured Network Extension Device
Test Item	:	Maximum conducted output power
Test Mode	:	Transmit (802.11ac-40 MHz-CDD)_Outdoor
Test Date	:	2022/06/29

Maximum conducted output power Measurement:

Channel No.	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	EIRP (dBm)	EIRP Limit (dBm)
38	5190	11.91	11.75	14.84	20.69	20.97
46	5230	11.59	11.85	14.73	20.58	20.97

Note:

1. Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))
2. EIRP = Output Power + Directional Gain for CDD Power

Product : Secured Network Extension Device
Test Item : Maximum conducted output power
Test Mode : Transmit (802.11ac-80 MHz-CDD)_Outdoor
Test Date : 2022/06/29

Maximum conducted output power Measurement:

Channel No.	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	EIRP (dBm)	EIRP Limit (dBm)
42	5210	11.62	11.75	14.70	20.55	20.97

Note:
1. Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))
2. EIRP = Output Power + Directional Gain for CDD Power

Product	:	Secured Network Extension Device
Test Item	:	Maximum conducted output power
Test Mode	:	Transmit (802.11ac-20 MHz-Beamforming)_Outdoor
Test Date	:	2022/06/29

Maximum conducted output power Measurement:

Channel No.	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	EIRP (dBm)	EIRP Limit (dBm)
36	5180	8.71	8.63	11.68	20.54	20.97
44	5220	8.82	9.06	11.95	20.81	20.97
48	5240	8.58	9.14	11.88	20.74	20.97

Note:

1. Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))
2. EIRP = Output Power + Directional Gain for Beamforming Power

Product	:	Secured Network Extension Device
Test Item	:	Maximum conducted output power
Test Mode	:	Transmit (802.11ac-40 MHz-Beamforming)_Outdoor
Test Date	:	2022/06/29

Maximum conducted output power Measurement:

Channel No.	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	EIRP (dBm)	EIRP Limit (dBm)
38	5190	8.90	8.74	11.83	20.69	20.97
46	5230	8.58	8.84	11.72	20.58	20.97

Note:

1. Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))
2. EIRP = Output Power + Directional Gain for Beamforming Power

Product	:	Secured Network Extension Device
Test Item	:	Maximum conducted output power
Test Mode	:	Transmit (802.11ac-80 MHz-Beamforming)_Outdoor
Test Date	:	2022/06/29

Maximum conducted output power Measurement:

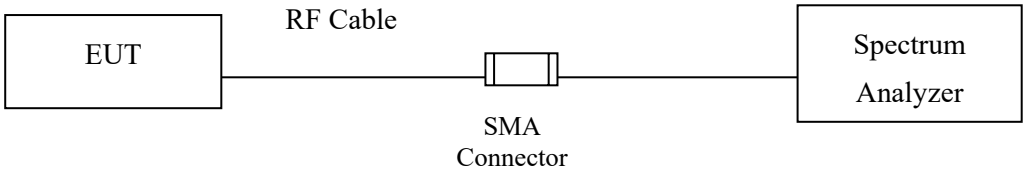
Channel No.	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	EIRP (dBm)	EIRP Limit (dBm)
42	5210	8.61	8.74	11.69	20.55	20.97

Note:

1. Output Power Value (dBm) = 10*LOG (Chain A(mW) + Chain B(mW))
2. EIRP = Output Power + Directional Gain for Beamforming Power

4. Maximun Power Spectral Density

4.1. Test Setup



4.2. Limits

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.150-5.250 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional Gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional Gain of the antenna exceeds 6 dBi.

(ii) For an indoor access point operating in the band 5.150-5.250 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional Gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional Gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.150-5.250 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-topoint U-NII devices may employ antennas with directional Gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna Gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna Gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high Gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.150-5.250 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional Gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional Gain of the antenna exceeds 6 dBi.

For the 5.250-5.350 GHz and 5.470-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional Gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional Gain of the antenna exceeds 6 dBi.

For the band 5.725-5.850 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional Gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional Gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional Gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high Gain directional antennas are used exclusively for fixed, point-to-point operations.

The maximum conducted output power shall be reduced by the amount in dB that the directional Gain of the antenna exceeds 6 dBi.

5150 MHz-5250 MHz: Directional Gain = 8.86 dBi, Limit= 14.14 dBm

5725 MHz-5850 MHz: Directional Gain = 8.51 dBi, Limit= 27.49 dBm

Directional Gain = 10 log[$(10^{G1/20} +10^{G2/20})^2$ / N_{ANT}] dBi

4.3. Test Procedure

The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

The Peak Power Spectral Density using KDB 789033 section F) procedure, Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer.

SA-1 method is selected to run the test.

4.4. Test Result of Maximun Power Spectral Density

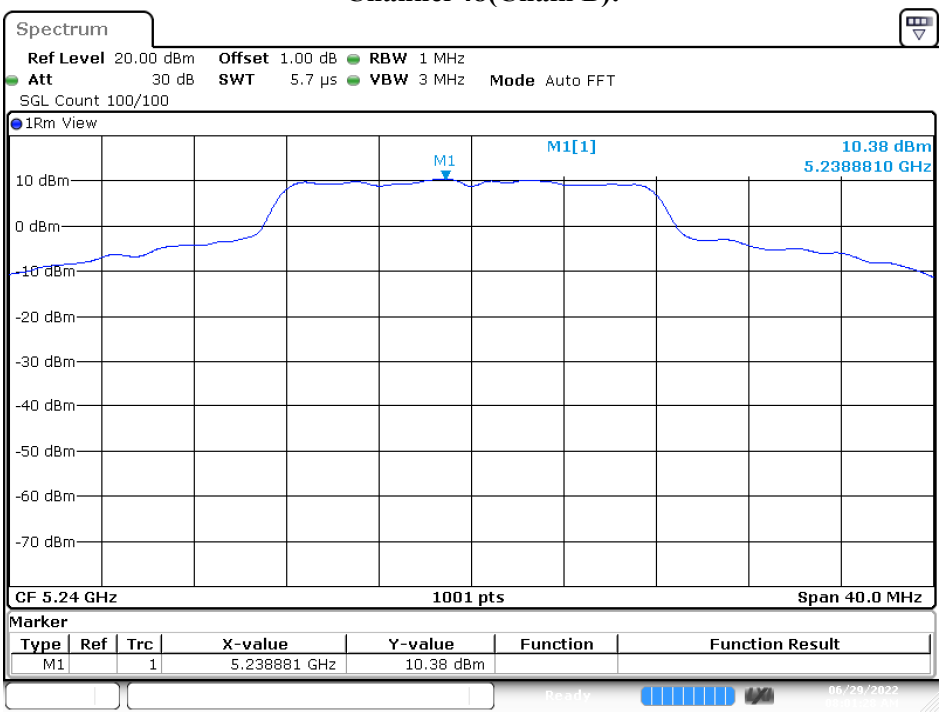
Product : Secured Network Extension Device
Test Item : Maximun Power Spectral Density
Test Mode : Transmit (802.11a-CDD)

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain	PPSD/MHz (dBm)	Duty factor (dB)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
36	5180	6	A	4.01	0.22	6.66	14.14	Pass
			B	2.76				
44	5220	6	A	8.25	0.22	11.34	14.14	Pass
			B	7.97				
48	5240	6	A	9.92	0.22	13.38	14.14	Pass
			B	10.38				

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain	PPSD/RBW (dBm)	Duty factor (dB)	Total PPSD/RBW (dBm)	Limit (dBm)	Result
149	5745	6	A	6.50	0.22	10.10	27.49	Pass
			B	7.22				
157	5785	6	A	7.34	0.22	10.26	27.49	Pass
			B	6.70				
165	5825	6	A	6.79	0.22	9.67	27.49	Pass
			B	6.06				

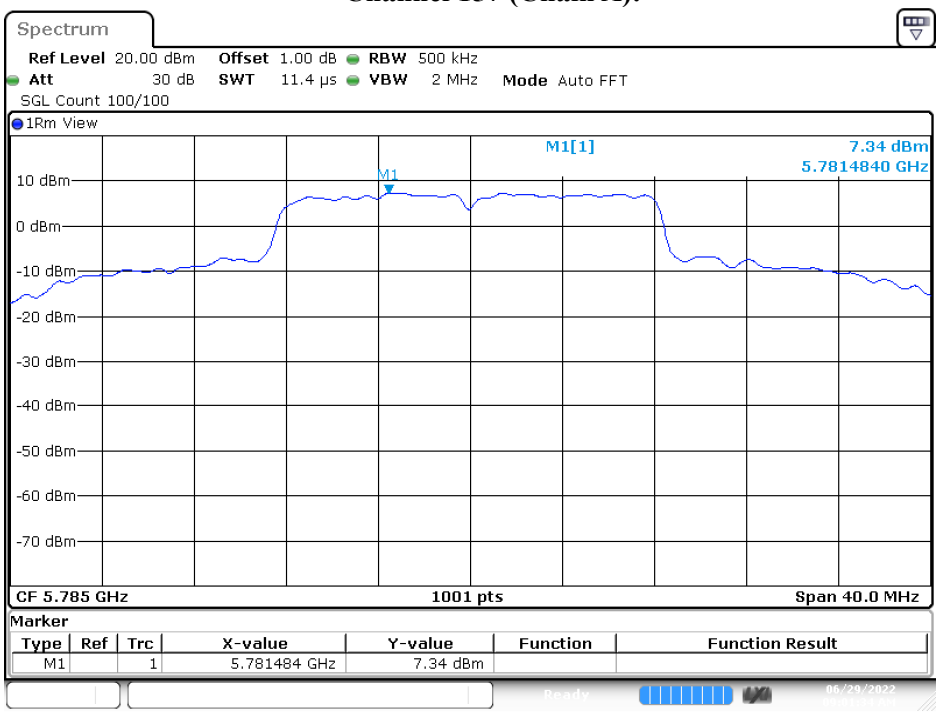
Note: Total PPSD = 10*log(Chain A (mW) + Chain B (mW) + Duty factor.

Channel 48(Chain B):



Date: 29.JUN.2022 08:01:28

Channel 157 (Chain A):



Date: 29.JUN.2022 09:01:34

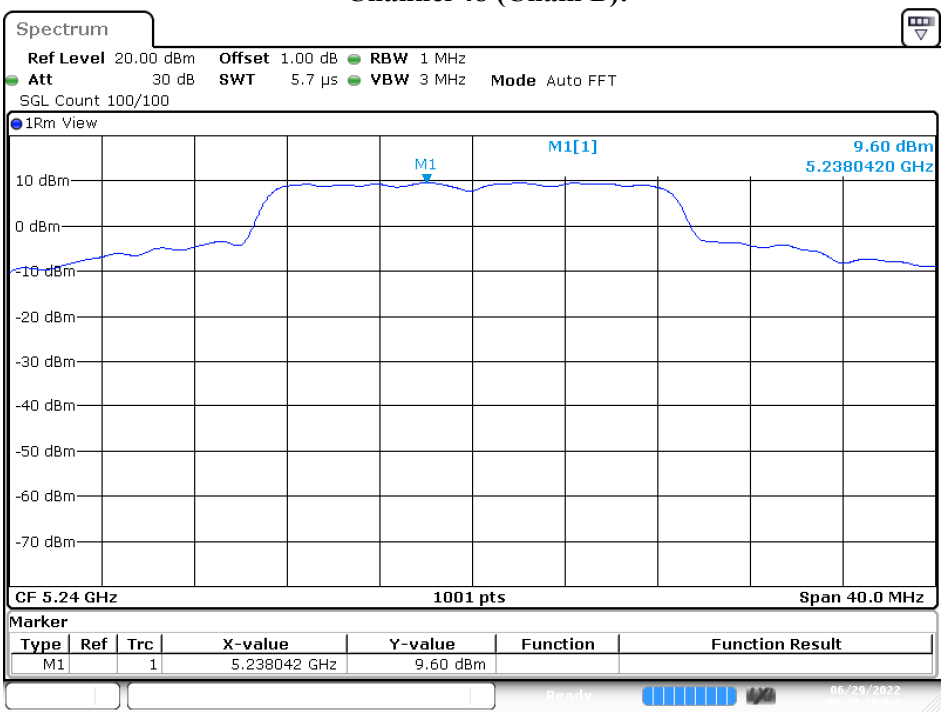
Product : Secured Network Extension Device
Test Item : Maximun Power Spectral Density
Test Mode : Transmit (802.11ac-20 MHz-CDD)

Channel No.	Frequency (MHz)	Data Rate	Chain	PPSD/MHz (dBm)	Duty factor (dB)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
36	5180	MCS0	A	1.90	0.00	5.26	14.14	Pass
			B	2.58				
44	5220	MCS0	A	7.84	0.00	11.11	14.14	Pass
			B	8.34				
48	5240	MCS0	A	9.04	0.00	12.34	14.14	Pass
			B	9.60				

Channel No.	Frequency (MHz)	Data Rate	Chain	PPSD/RBW (dBm)	Duty factor (dB)	Total PPSD/RBW (dBm)	Limit (dBm)	Result
149	5745	MCS0	A	5.12	0.00	8.24	27.49	Pass
			B	5.33				
157	5785	MCS0	A	6.51	0.00	9.12	27.49	Pass
			B	5.67				
165	5825	MCS0	A	4.72	0.00	8.52	27.49	Pass
			B	6.18				

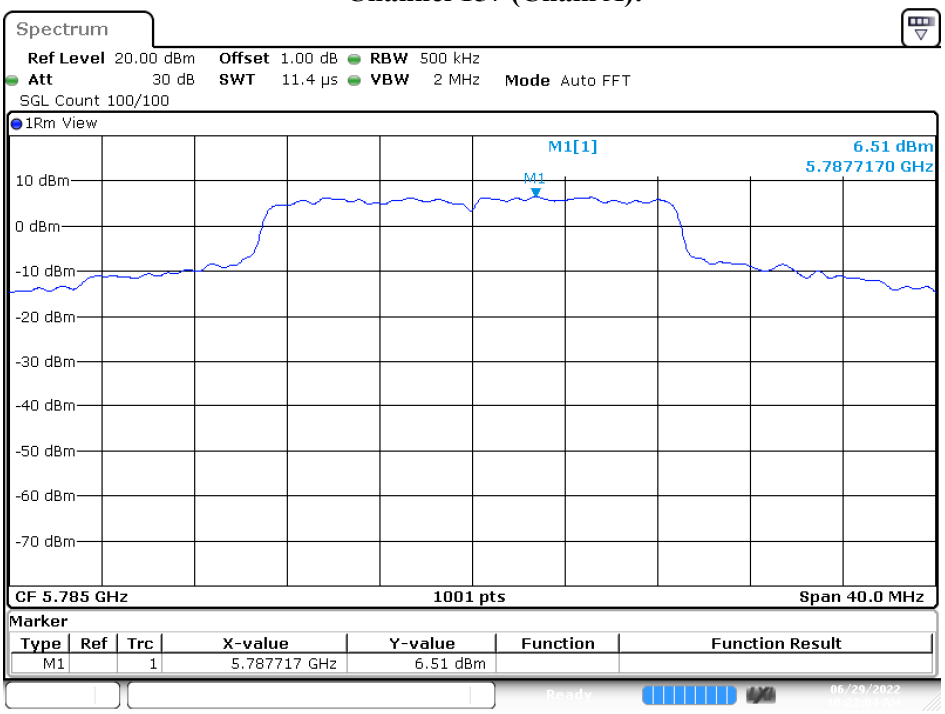
Note: Total PPSD = 10*log(Chain A (mW) + Chain B (mW) + Duty factor

Channel 48 (Chain B):



Date: 29.JUN.2022 09:27:29

Channel 157 (Chain A):



Date: 29.JUN.2022 10:22:05

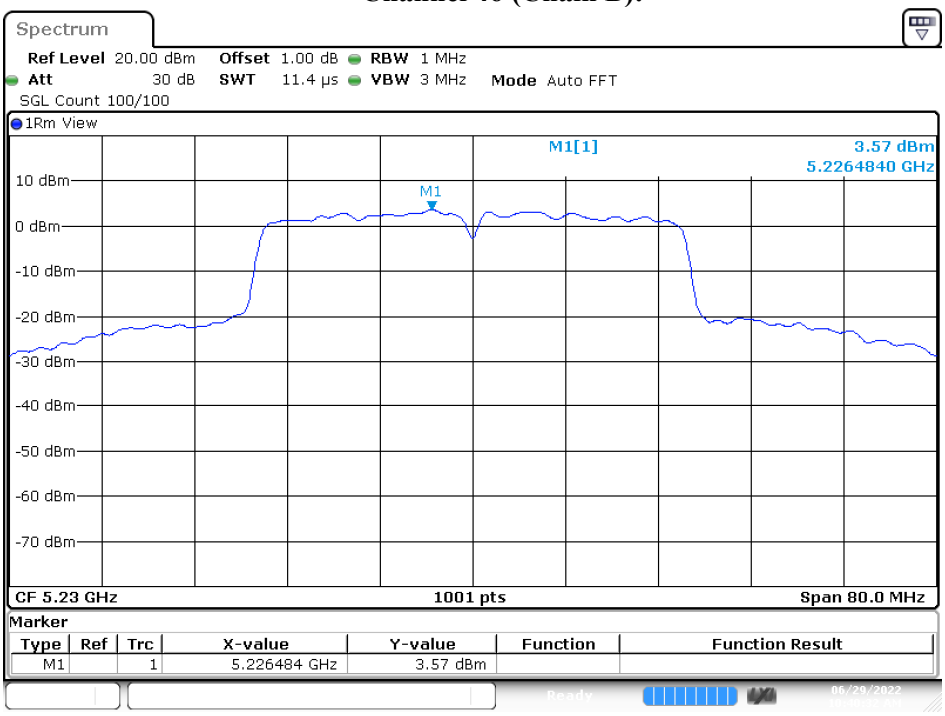
Product : Secured Network Extension Device
Test Item : Maximun Power Spectral Density
Test Mode : Transmit (802.11ac-40 MHz-CDD)

Channel No.	Frequency (MHz)	Data Rate	Chain	PPSD/MHz (dBm)	Duty factor (dB)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
38	5190	MCS0	A	-1.13	0.18	1.97	14.14	Pass
			B	-1.31				
46	5230	MCS0	A	3.23	0.18	6.59	14.14	Pass
			B	3.57				

Channel No.	Frequency (MHz)	Data Rate	Chain	PPSD/RBW (dBm)	Duty factor (dB)	Total PPSD/RBW (dBm)	Limit (dBm)	Result
151	5755	MCS0	A	0.79	0.18	4.06	27.49	Pass
			B	0.96				
159	5795	MCS0	A	1.08	0.18	4.68	27.49	Pass
			B	1.87				

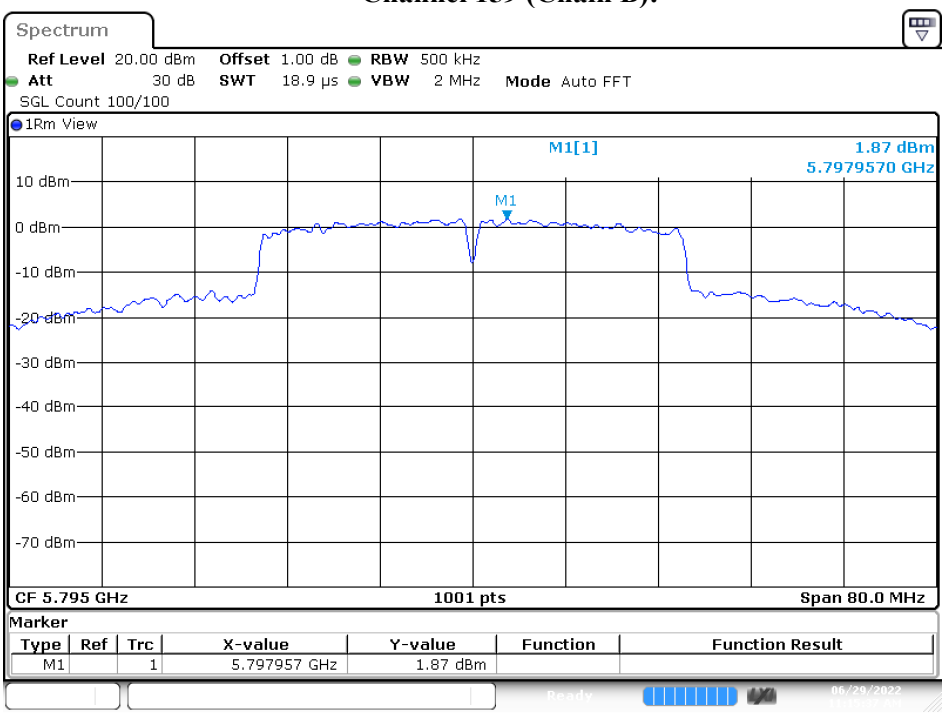
Note: Total PPSD = 10*log(Chain A (mW) + Chain B (mW) + Duty factor

Channel 46 (Chain B):



Date: 29.JUN.2022 10:40:32

Channel 159 (Chain B):



Date: 29.JUN.2022 11:15:37

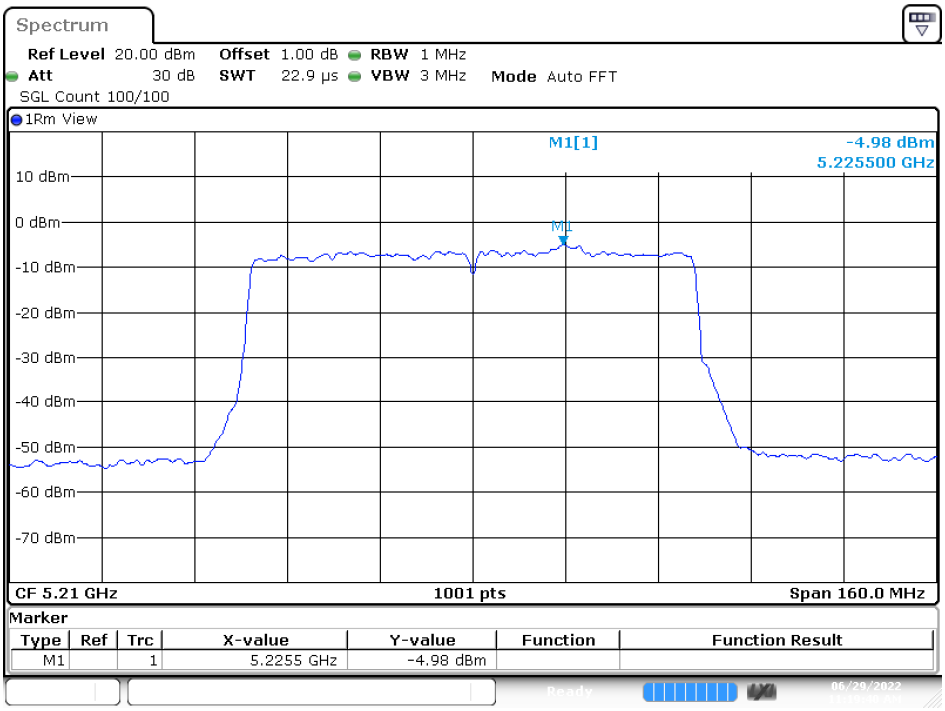
Product : Secured Network Extension Device
Test Item : Maximun Power Spectral Density
Test Mode : Transmit (802.11ac-80 MHz-CDD)

Channel No.	Frequency (MHz)	Data Rate	Chain	PPSD/MHz (dBm)	Duty factor (dB)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
42	5210	MCS0	A	-5.81	0.41	-1.96	14.14	Pass
			B	-4.98				

Channel No.	Frequency (MHz)	Data Rate	Chain	PPSD/RBW (dBm)	Duty factor (dB)	Total PPSD/RBW (dBm)	Limit (dBm)	Result
155	5775	MCS0	A	-5.98	0.41	-2.13	27.49	Pass
			B	-5.15				

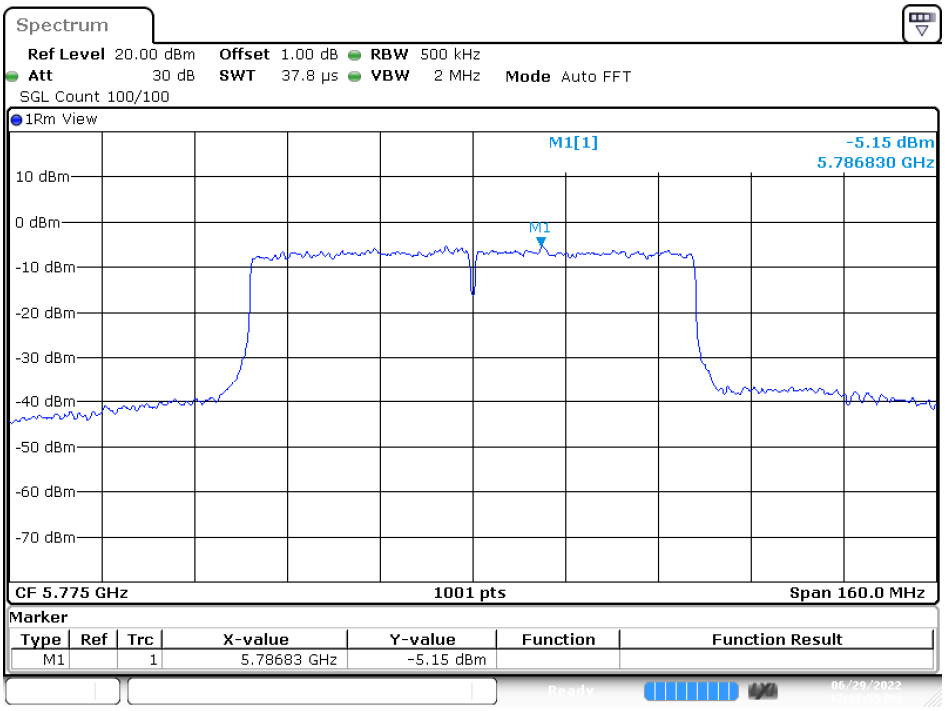
Note: Total PPSD = 10*log(Chain A (mW) + Chain B (mW) + Duty factor

Channel 42 (Chain B):



Date: 29.JUN.2022 11:19:40

Channel 155 (Chain B):

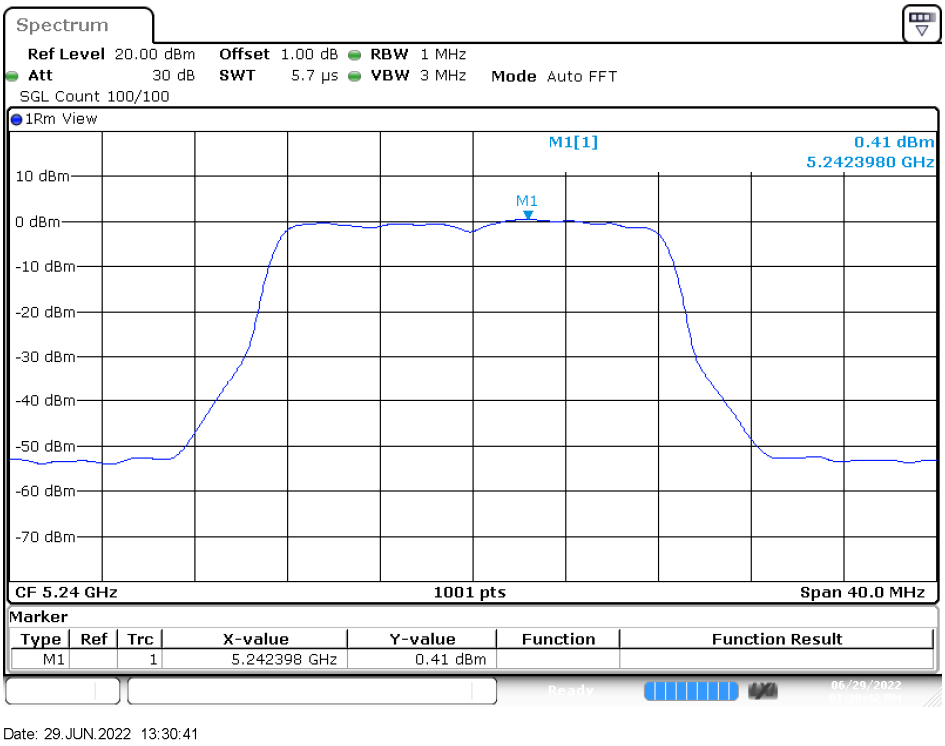


Date: 29.JUN.2022 12:11:56

Product : Secured Network Extension Device
Test Item : Maximun Power Spectral Density
Test Mode : Transmit (802.11a-CDD)_Outdoor

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain	PPSD/MHz (dBm)	Duty factor (dB)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
36	5180	6	A	-0.30	0.22	2.52	14.14	Pass
			B	-1.16				
44	5220	6	A	-0.71	0.22	2.46	14.14	Pass
			B	-0.82				
48	5240	6	A	-0.65	0.22	3.14	14.14	Pass
			B	0.41				

Channel 48 (Chain B):

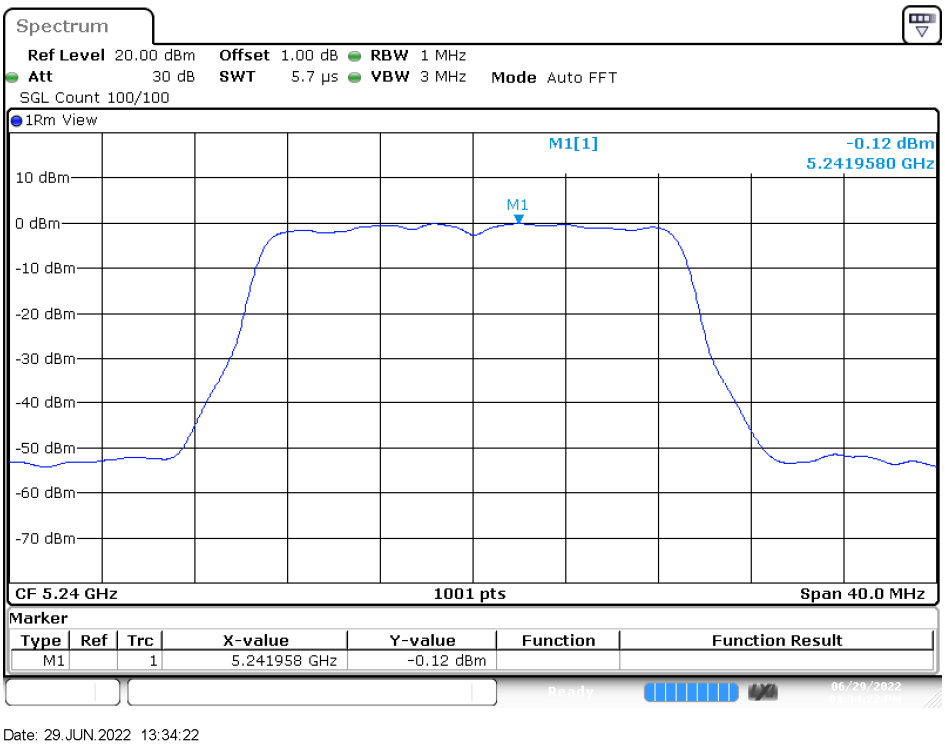


Date: 29.JUN.2022 13:30:41

Product : Secured Network Extension Device
Test Item : Maximun Power Spectral Density
Test Mode : Transmit (802.11ac-20 MHz-CDD)_Outdoor

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain	PPSD/MHz (dBm)	Duty factor (dB)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
36	5180	MCS0	A	-1.48	0.00	1.69	14.14	Pass
			B	-1.17				
44	5220	MCS0	A	-0.59	0.00	2.48	14.14	Pass
			B	-0.47				
48	5240	MCS0	A	-0.55	0.00	2.68	14.14	Pass
			B	-0.12				

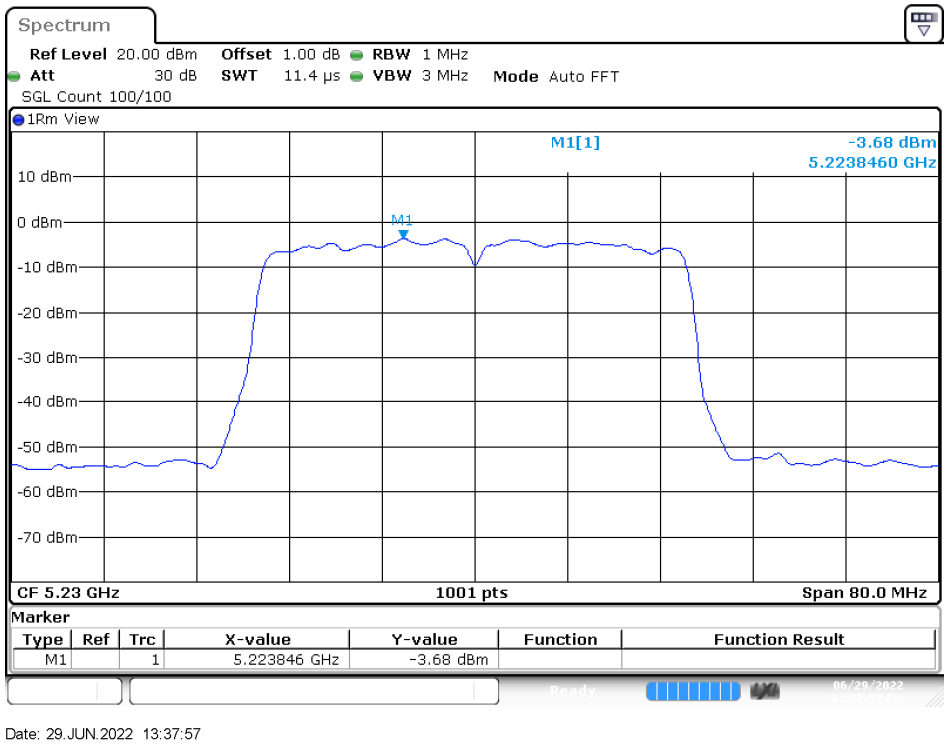
Channel 48 (Chain B):



Product : Secured Network Extension Device
Test Item : Maximun Power Spectral Density
Test Mode : Transmit (802.11ac-40 MHz-CDD)_Outdoor

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain	PPSD/MHz (dBm)	Duty factor (dB)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
38	5190	MCS0	A	-4.03	0.18	-0.98	14.14	Pass
			B	-4.31				
46	5230	MCS0	A	-4.19	0.18	-0.74	14.14	Pass
			B	-3.68				

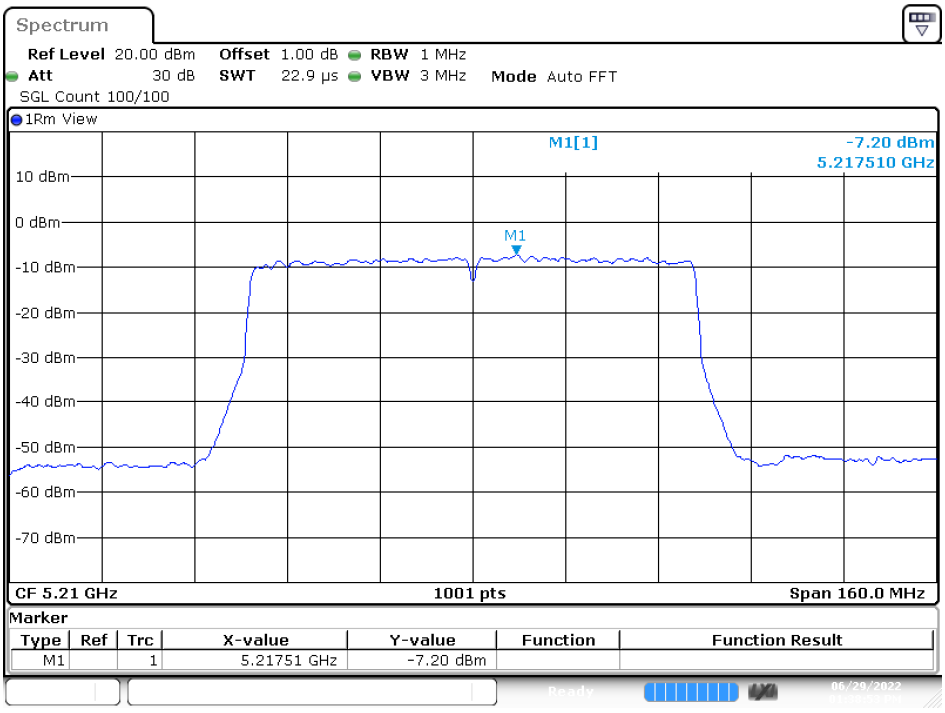
Channel 46 (Chain B):



Product : Secured Network Extension Device
Test Item : Maximun Power Spectral Density
Test Mode : Transmit (802.11ac-80 MHz-CDD)_Outdoor

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain	PPSD/MHz (dBm)	Duty factor (dB)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
42	5210	MCS0	A	-7.36	0.41	-3.86	14.14	Pass
			B	-7.20				

Channel 42 (Chain B):

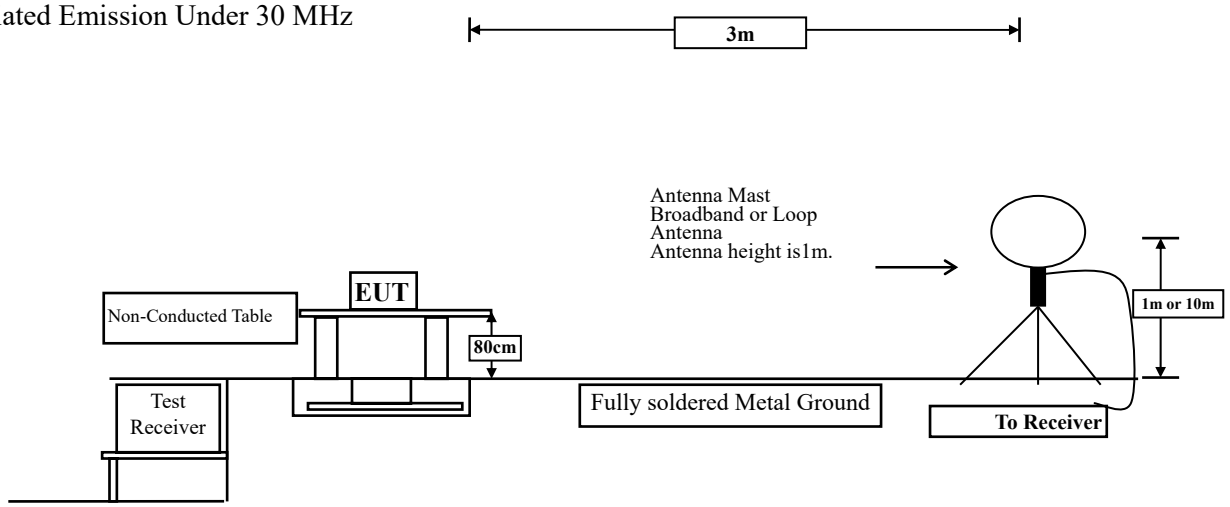


Date: 29.JUN.2022 13:38:54

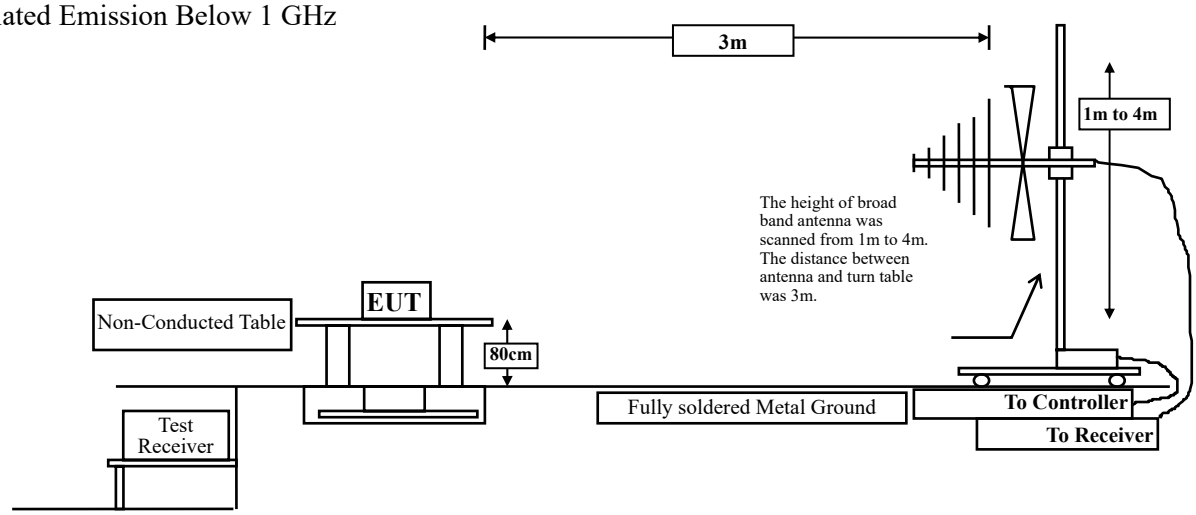
5. Radiated Emission

5.1. Test Setup

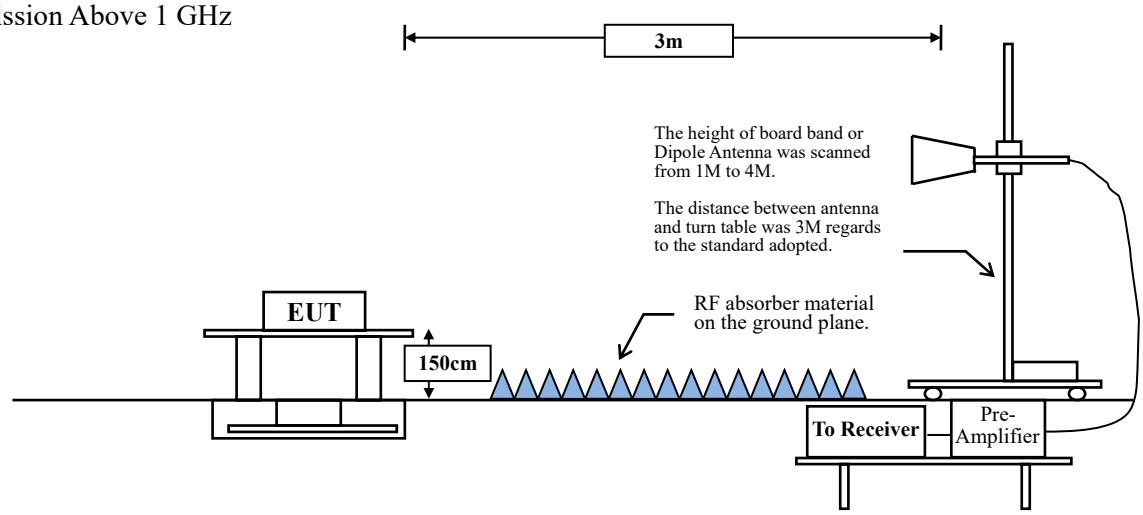
Radiated Emission Under 30 MHz



Radiated Emission Below 1 GHz



Radiated Emission Above 1 GHz



5.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dBμV/m) = 20 log E field strength (μV/m)

5.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to FCC KDB-789033 test procedure for compliance to FCC 47CFR 15. 407 requirements.

Measuring the frequency range below 1 GHz, the EUT is placed on a turn table which is 0.8 meter above ground,when measuring the frequency range above 1 GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30 MHz setting on the field strength meter is 9 kHz and 30 MHz~1 GHz is 120 kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30 MHz are made using Loop Antenna and 30 MHz~1 GHz are made using broadband Bilog antenna and above 1 GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The measurement frequency range form 9 kHz - 10th Harmonic of fundamental was investigated.

RBW and VBW Parameter setting:

According to KDB 789033 section II.G.5 Procedure for Unwanted Maximum Emissions Measurements above 1000 MHz.

RBW = 1 MHz.

VBW ≥ 3 MHz.

According to KDB 789033 section II.G.6 Procedures for Average Unwanted Emissions Measurements above 1000 MHz.

RBW = 1 MHz.

VBW = 10 Hz, when duty cycle ≥ 98 %

VBW ≥ 1/T, when duty cycle < 98 %

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

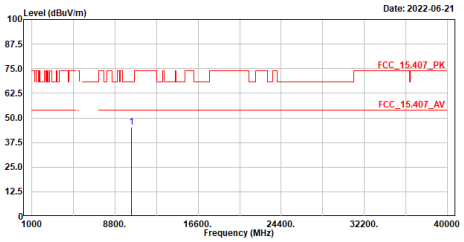
CDD Mode:

5 GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11a	95.14	2.0550	487	500
802.11ac-20 MHz	99.02	5.0500	198	10
802.11ac-40 MHz	96.03	2.4200	413	500
802.11ac-80 MHz	91.06	1.1200	893	1000

Note: Duty Cycle Refer to Section 8.

5.4. Test Result of Radiated Emission

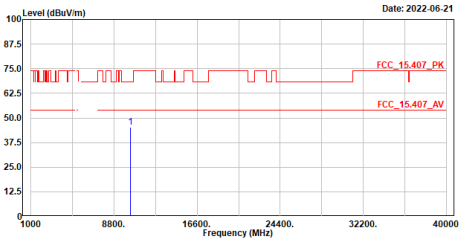
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_a_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10360.000	45.25	68.22	-22.97	39.12	6.13	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

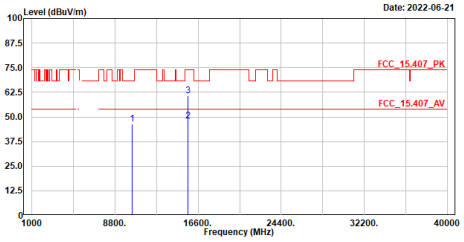
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_a_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10360.000	45.30	68.22	-22.92	39.32	5.98	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

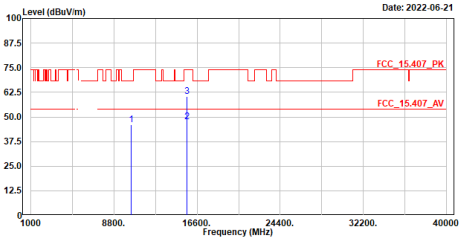
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_a_5220MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10440.000	46.31	68.22	-21.91	40.16	6.15	Peak
2	15660.000	47.95	54.00	-6.05	37.82	10.13	Average
3	15660.000	60.78	74.00	-13.22	50.66	10.12	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

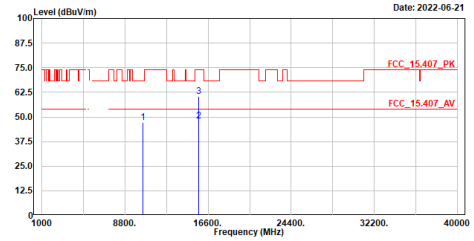
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_a_5220MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10440.000	46.10	68.22	-22.12	39.95	6.15	Peak
2	15660.000	47.53	54.00	-6.47	37.40	10.13	Average
3	15660.000	60.47	74.00	-13.53	50.37	10.10	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

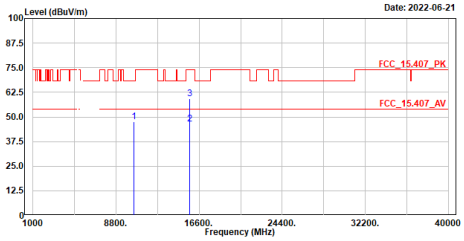
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_a_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10480.000	47.27	68.22	-20.95	41.14	6.13	Peak
2	15720.000	48.02	54.00	-5.98	37.86	10.16	Average
3	15720.000	60.33	74.00	-13.67	50.17	10.16	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

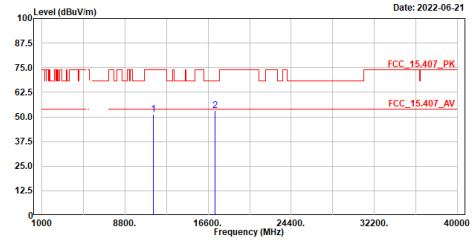
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_a_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10480.000	47.66	68.22	-20.56	41.55	6.11	Peak
2	15720.000	46.47	54.00	-7.53	36.31	10.16	Average
3	15720.000	59.35	74.00	-14.65	49.19	10.16	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

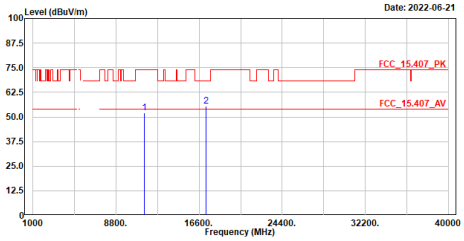
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_a_5745MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11490.000	51.16	74.00	-22.84	44.09	7.07	Peak
2	17235.000	53.10	68.22	-15.12	40.94	12.16	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

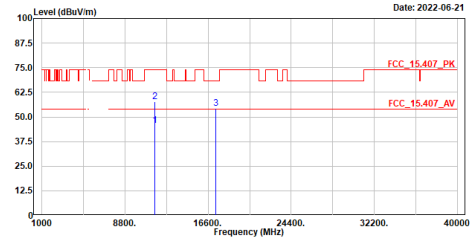
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_a_5745MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11490.000	52.21	74.00	-21.79	45.17	7.04	Peak
2	17235.000	55.58	68.22	-12.64	43.44	12.14	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

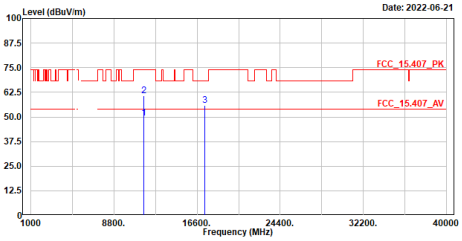
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_a_5785MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11570.000	45.72	54.00	-8.28	38.43	7.29	Average
2	11570.000	57.82	74.00	-16.18	50.53	7.29	Peak
3	17355.000	54.19	68.22	-14.03	41.79	12.40	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

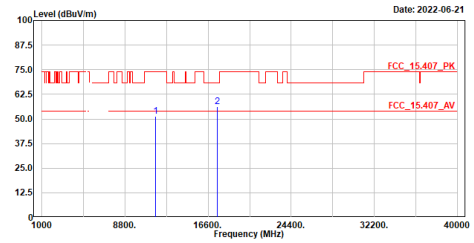
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_a_5785MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11570.000	49.25	54.00	-4.75	41.96	7.29	Average
2	11570.000	60.94	74.00	-13.06	53.67	7.27	Peak
3	17355.000	55.87	68.22	-12.35	43.47	12.40	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

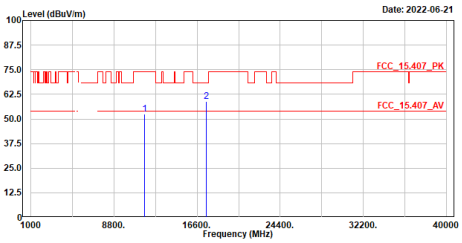
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_a_5825MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11650.000	51.25	74.00	-22.75	43.76	7.49	Peak
2	17475.000	56.11	68.22	-12.11	43.61	12.50	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

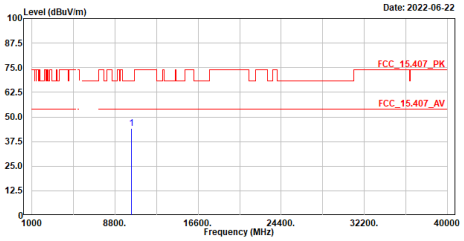
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_a_5825MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11650.000	52.27	74.00	-21.73	44.77	7.50	Peak
2	17475.000	58.98	68.22	-9.24	46.51	12.47	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

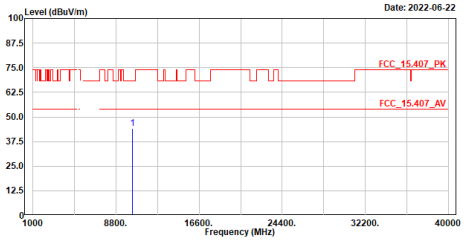
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_ac20_5180MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10360.000	44.34	68.22	-23.88	38.31	6.03	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

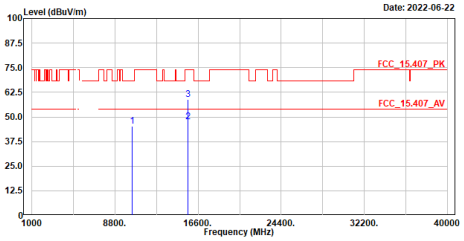
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_ac20_5180MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10360.000	44.11	68.22	-24.11	38.08	6.03	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

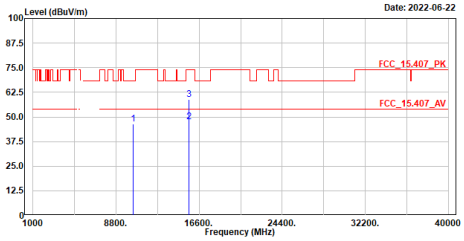
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_ac20_5220MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10440.000	45.23	68.22	-22.99	39.08	6.15	Peak
2	15660.000	47.40	54.00	-6.60	37.27	10.13	Average
3	15660.000	59.02	74.00	-14.98	48.90	10.12	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

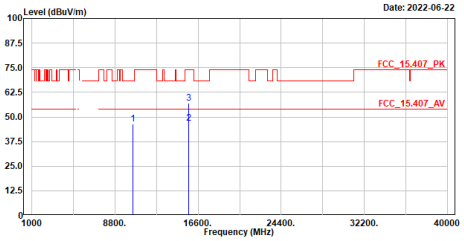
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_ac20_5220MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10440.000	46.33	68.22	-21.89	40.18	6.15	Peak
2	15660.000	47.55	54.00	-6.45	37.42	10.13	Average
3	15660.000	58.96	74.00	-15.04	48.84	10.12	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

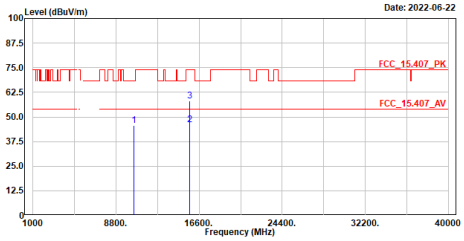
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_ac20_5240MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10480.000	46.37	68.22	-21.85	40.26	6.11	Peak
2	15720.000	46.83	54.00	-7.17	36.67	10.16	Average
3	15720.000	57.15	74.00	-16.85	47.00	10.15	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

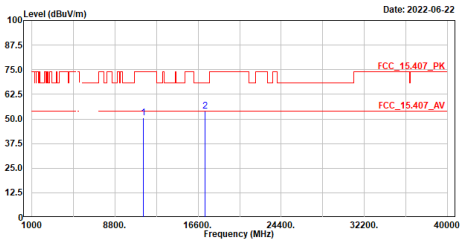
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_ac20_5240MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10480.000	45.84	68.22	-22.38	39.73	6.11	Peak
2	15720.000	46.21	54.00	-7.79	36.05	10.16	Average
3	15720.000	58.29	74.00	-15.71	48.12	10.17	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

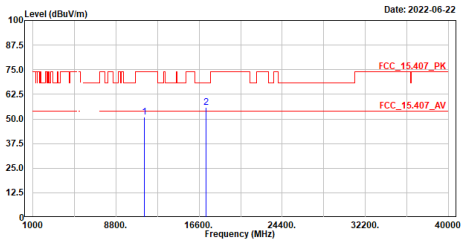
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_ac20_5745MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11490.000	50.72	74.00	-23.28	43.65	7.07	Peak
2	17235.000	54.13	68.22	-14.09	42.00	12.13	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

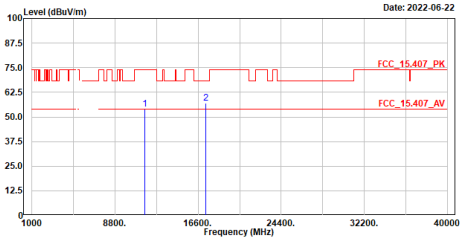
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_ac20_5745MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11490.000	51.10	74.00	-22.90	44.02	7.08	Peak
2	17235.000	55.77	68.22	-12.45	43.64	12.13	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

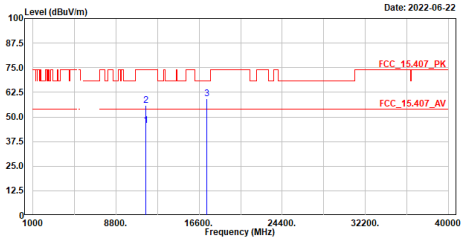
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_ac20_5785MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11570.000	53.93	74.00	-20.07	46.60	7.33	Peak
2	17355.000	57.12	68.22	-11.10	44.72	12.40	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

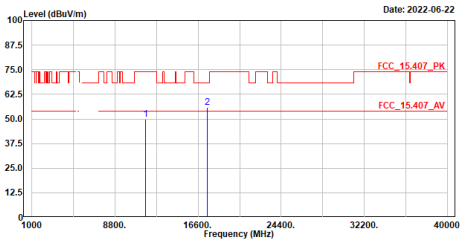
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_ac20_5785MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11570.000	45.76	54.00	-8.24	38.47	7.29	Average
2	11570.000	55.71	74.00	-18.29	48.42	7.29	Peak
3	17355.000	59.42	68.22	-8.80	47.02	12.40	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

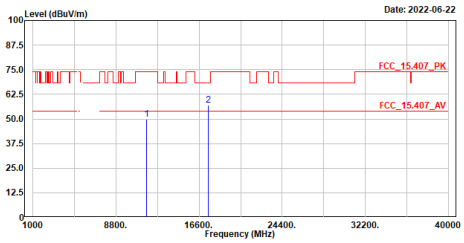
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_ac20_5825MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11650.000	49.91	74.00	-24.09	42.41	7.50	Peak
2	17475.000	55.95	68.22	-12.27	43.48	12.47	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

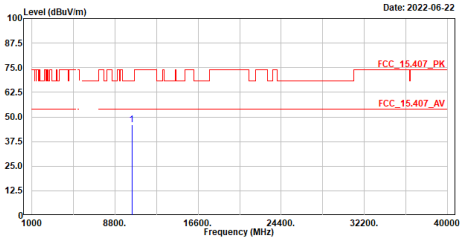
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_ac20_5825MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11650.000	49.99	74.00	-24.01	42.50	7.49	Peak
2	17475.000	56.99	68.22	-11.23	44.49	12.50	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

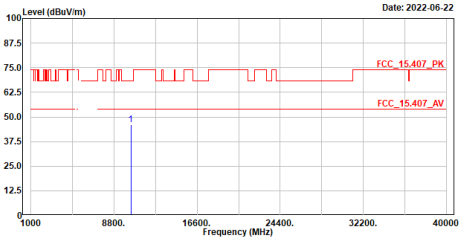
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_ac40_5190MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10380.000	45.90	68.22	-22.32	39.84	6.06	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

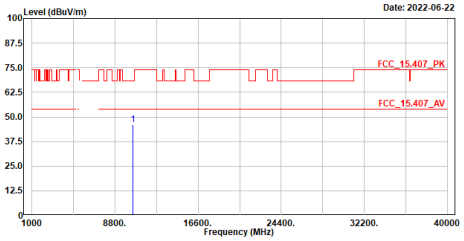
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_ac40_5190MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10380.000	46.21	68.22	-22.01	40.05	6.16	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

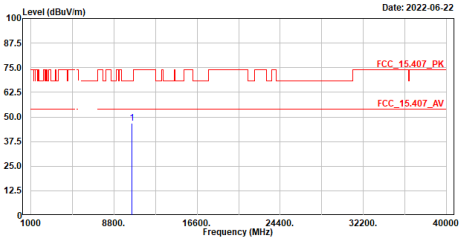
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_ac40_5230MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10460.000	46.06	68.22	-22.16	39.95	6.11	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

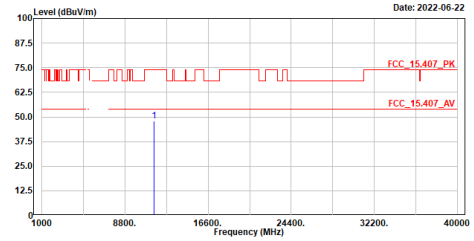
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_ac40_5230MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10460.000	46.73	68.22	-21.49	40.61	6.12	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

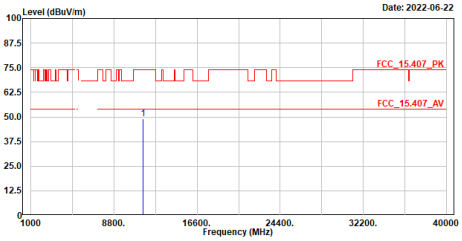
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_ac40_5755MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11510.000	48.11	74.00	-25.89	40.96	7.15	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

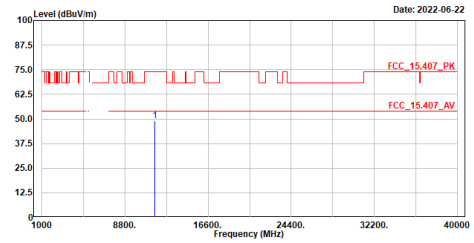
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_ac40_5755MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11510.000	48.88	74.00	-25.12	41.77	7.11	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

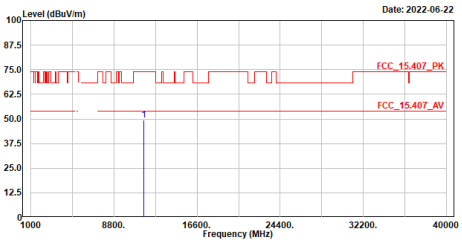
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_ac40_5795MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11590.000	48.93	74.00	-25.07	41.60	7.33	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

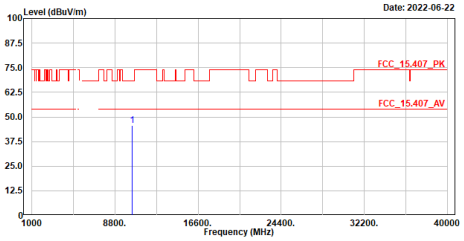
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_ac40_5795MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11590.000	49.37	74.00	-24.63	42.03	7.34	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

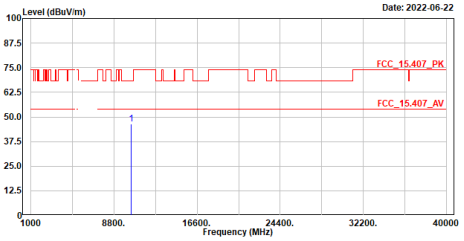
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_ac80_5210MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10420.000	45.80	68.22	-22.42	39.65	6.15	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

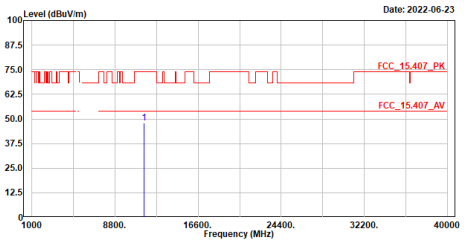
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_ac80_5210MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10420.000	46.37	68.22	-21.85	40.22	6.15	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

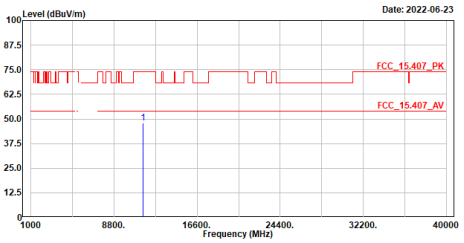
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_ac80_5775MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11550.000	48.03	74.00	-25.97	40.77	7.26	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

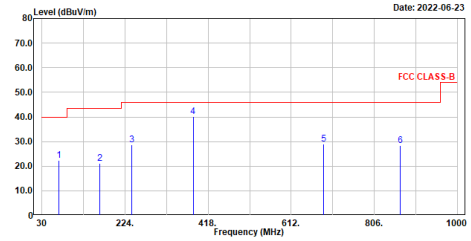
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_ac80_5775MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11550.000	47.83	74.00	-26.17	40.54	7.29	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

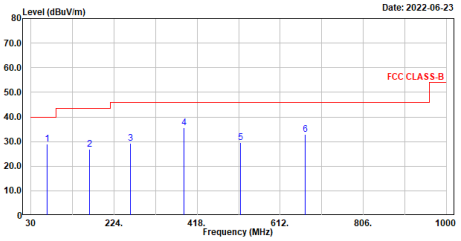
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_ac80_5775MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	69.770	22.42	40.00	-17.58	49.06	-26.64	QP
2	164.830	21.12	43.50	-22.38	45.39	-24.27	QP
3	239.520	28.75	46.00	-17.25	54.54	-25.79	QP
4	383.080	40.06	46.00	-5.94	61.70	-21.64	QP
5	687.660	29.04	46.00	-16.96	44.27	-15.23	QP
6	866.140	28.35	46.00	-17.65	41.35	-13.00	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_ac80_5775MHz
Test BY :Jing Chang



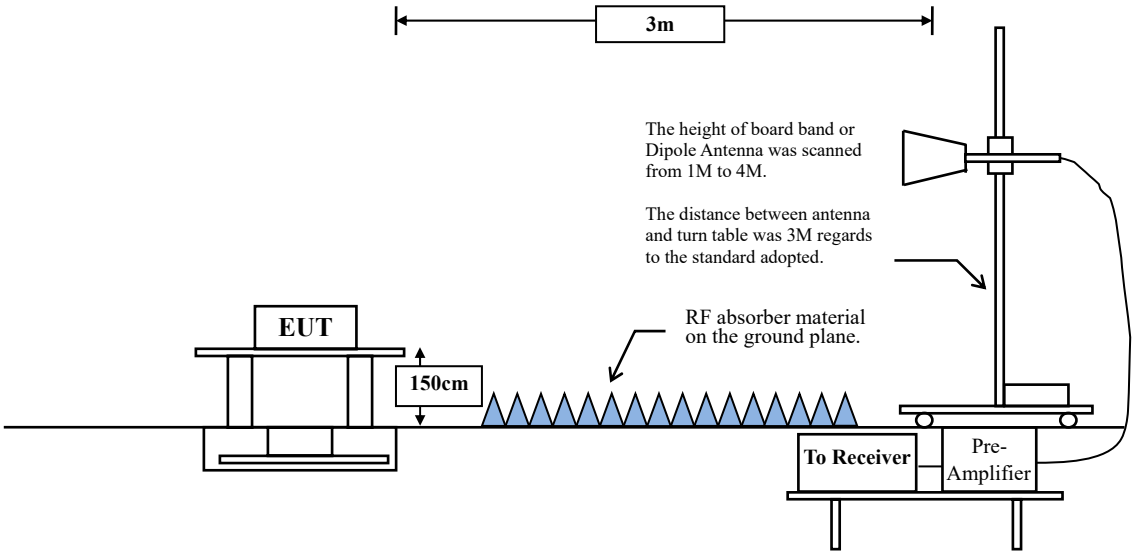
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	67.830	29.01	40.00	-10.99	55.12	-26.11	QP
2	166.770	26.89	43.50	-16.61	51.26	-24.37	QP
3	261.830	29.42	46.00	-16.58	54.79	-25.37	QP
4	387.930	35.64	46.00	-10.36	57.16	-21.52	QP
5	518.880	29.62	46.00	-16.38	48.02	-18.40	QP
6	671.170	32.82	46.00	-13.18	48.35	-15.53	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

6. Band Edge

6.1. Test Setup

RF Radiated Measurement:



6.2. Limits

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section. Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	µV/m @3m	dBµV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks:

1. RF Voltage (dBµV) = 20 log RF Voltage (µV)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

6.3. Test Procedure

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10:2013 on radiated measurement.

The bandwidth below 1 GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.

The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

RBW and VBW Parameter setting:

According to KDB 789033 section II.G.5 Procedure for Unwanted Maximum Emissions Measurements above 1000 MHz.

RBW = 1 MHz.

VBW ≥ 3 MHz.

According to KDB 789033 section II.G.6 Procedures for Average Unwanted Emissions Measurements above 1000 MHz.

RBW = 1 MHz.

VBW = 10 Hz, when duty cycle ≥ 98 %

VBW ≥ 1/T, when duty cycle < 98 %

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

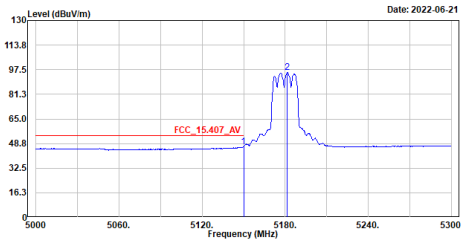
CDD Mode:

5 GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11a	95.14	2.0550	487	500
802.11ac-20 MHz	99.02	5.0500	198	10
802.11ac-40 MHz	96.03	2.4200	413	500
802.11ac-80 MHz	91.06	1.1200	893	1000

Note: Duty Cycle Refer to Section 8.

6.4. Test Result of Band Edge

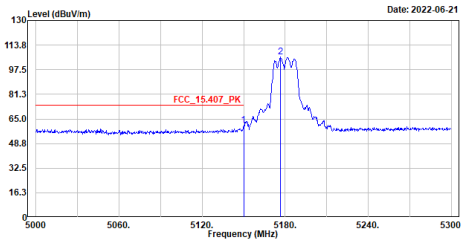
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_a_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5150.000	46.82	54.00	-7.18	29.25	17.57	Average
2	5181.500	95.66	------	------	77.99	17.67	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

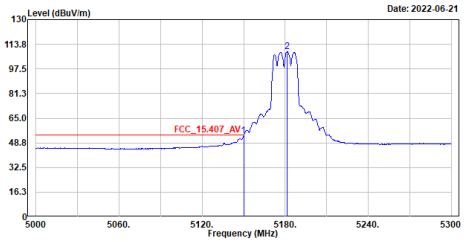
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_a_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5150.000	60.88	74.00	-13.12	43.31	17.57	Peak
2	5176.700	106.06	------	------	88.40	17.66	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

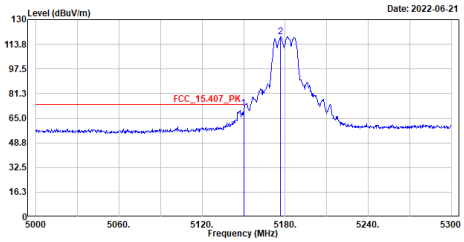
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_a_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5150.000	53.49	54.00	-0.51	35.92	17.57	Average
2	5181.500	108.89	------	------	91.22	17.67	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

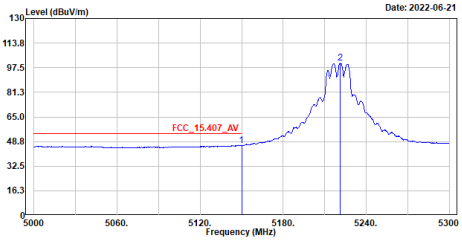
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_a_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5150.000	71.59	74.00	-2.41	54.02	17.57	Peak
2	5176.700	118.82	------	------	101.16	17.66	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

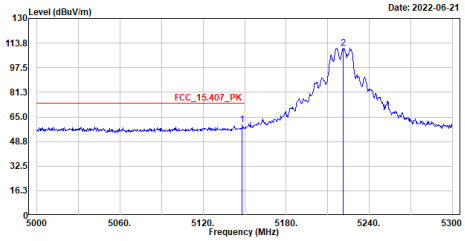
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_a_5220MHz_B1
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5150.000	46.35	54.00	-7.65	28.78	17.57	Average
2	5221.400	100.58	------	------	82.71	17.87	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

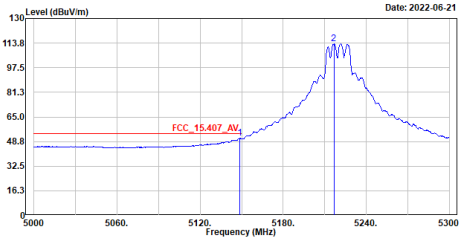
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_a_5220MHz_B1
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5148.200	59.72	74.00	-14.28	42.15	17.57	Peak
2	5221.400	110.51	------	------	92.64	17.87	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

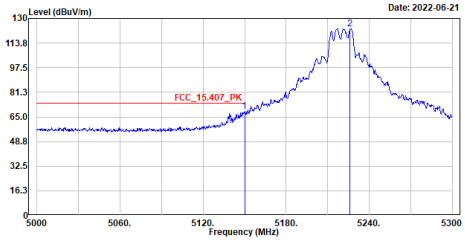
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_a_5220MHz_B1
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5148.800	51.01	54.00	-2.99	33.44	17.57	Average
2	5216.600	113.42	------	------	95.57	17.85	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

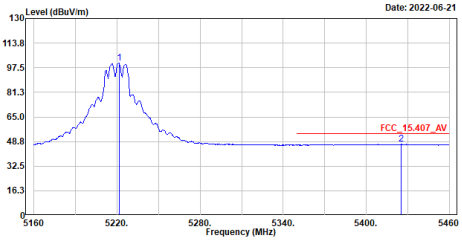
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_a_5220MHz_B1
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5150.000	68.44	74.00	-5.56	50.87	17.57	Peak
2	5226.200	123.38	------	------	105.48	17.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

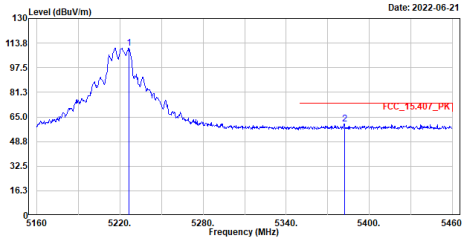
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_a_5220MHz_B2
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5221.500	100.57	------	------	82.70	17.87	Average
2	5425.200	46.97	54.00	-7.03	28.62	18.35	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

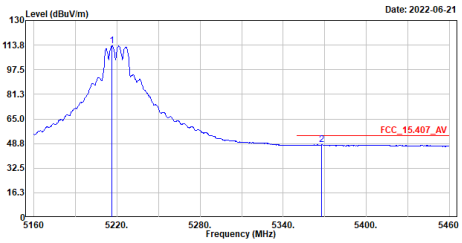
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_a_5220MHz_B2
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5226.300	110.45	------	------	92.54	17.91	Peak
2	5382.000	60.22	74.00	-13.78	41.91	18.31	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

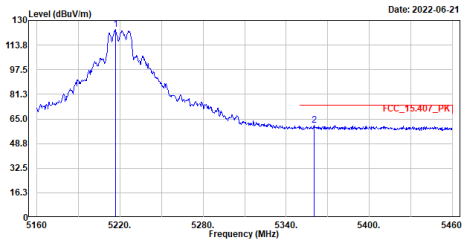
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_a_5220MHz_B2
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5216.400	113.36	------	------	95.51	17.85	Average
2	5367.900	47.93	54.00	-6.07	29.71	18.22	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

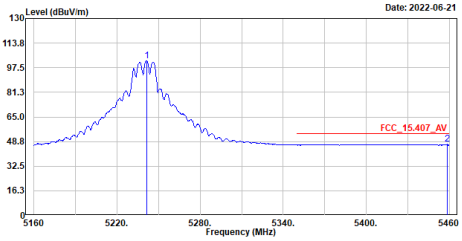
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_a_5220MHz_B2
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5216.700	124.01	------	------	106.16	17.85	Peak
2	5360.400	60.64	74.00	-13.36	42.45	18.19	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

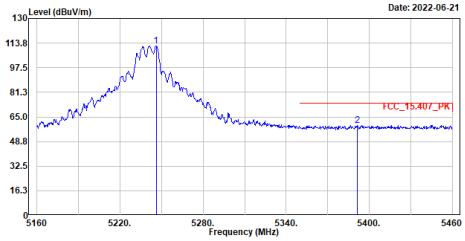
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_a_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5241.600	101.84	------	------	83.85	17.99	Average
2	5458.500	46.95	54.00	-7.05	28.63	18.32	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

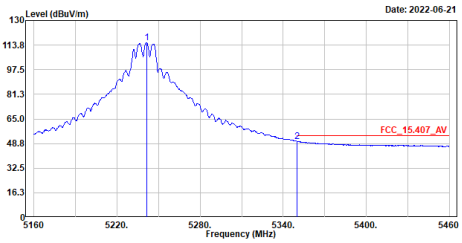
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_a_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5246.100	111.98	------	------	93.97	18.01	Peak
2	5391.300	59.60	74.00	-14.40	41.24	18.36	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

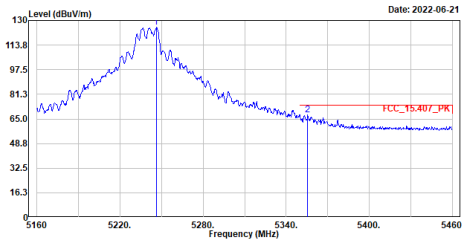
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_a_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5241.300	115.12	------	------	97.13	17.99	Average
2	5350.200	50.12	54.00	-3.88	31.99	18.13	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

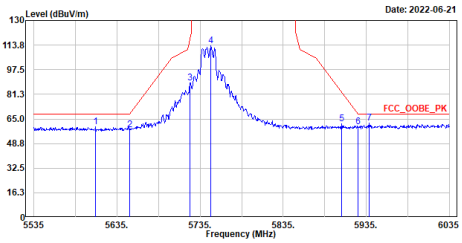
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_a_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5246.100	125.48	------	------	107.47	18.01	Peak
2	5355.600	67.66	74.00	-6.34	49.51	18.15	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

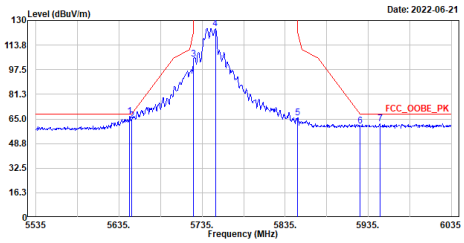
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_a_5745MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5609.500	59.81	68.20	-8.39	41.13	18.68	Peak
2	5650.000	58.00	68.21	-10.21	39.57	18.43	Peak
3	5723.000	88.89	117.64	-28.75	69.96	18.93	Peak
4	5748.000	113.14	------	------	94.09	19.05	Peak
5	5905.500	61.94	82.63	-20.69	42.30	19.64	Peak
6	5925.000	59.87	68.21	-8.34	40.16	19.71	Peak
7	5938.500	62.32	68.20	-5.88	42.56	19.76	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

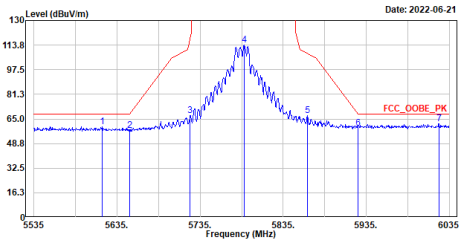
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_a_5745MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5648.000	66.73	68.20	-1.47	48.28	18.45	Peak
2	5650.000	63.91	68.21	-4.30	45.48	18.43	Peak
3	5725.000	104.32	122.20	-17.88	85.38	18.94	Peak
4	5751.000	124.71	------	------	105.64	19.07	Peak
5	5850.000	65.77	122.20	-56.43	46.51	19.26	Peak
6	5925.000	60.25	68.21	-7.96	40.54	19.71	Peak
7	5949.000	61.94	68.20	-6.26	42.15	19.79	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

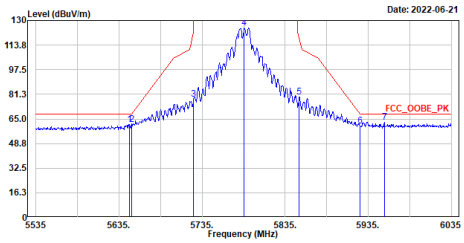
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_a_5785MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5617.500	60.01	68.20	-8.19	41.37	18.64	Peak
2	5650.000	57.18	68.21	-11.03	38.75	18.43	Peak
3	5723.000	67.40	117.64	-50.24	48.47	18.93	Peak
4	5788.000	114.01	------	------	94.87	19.14	Peak
5	5864.500	67.29	108.14	-40.85	47.91	19.38	Peak
6	5925.000	58.96	68.21	-9.25	39.25	19.71	Peak
7	6022.500	61.76	68.20	-6.44	41.78	19.98	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

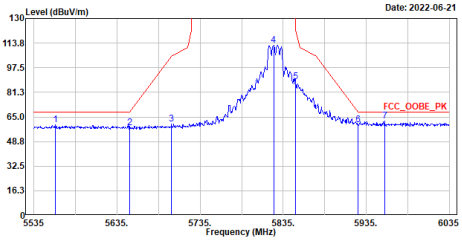
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_a_5785MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5647.500	61.44	68.20	-6.76	42.99	18.45	Peak
2	5650.000	61.43	68.21	-6.78	43.00	18.43	Peak
3	5725.000	78.16	122.20	-44.04	59.22	18.94	Peak
4	5785.500	125.01	------	------	105.88	19.13	Peak
5	5852.000	79.71	117.64	-37.93	60.43	19.28	Peak
6	5925.000	60.12	68.21	-8.09	40.41	19.71	Peak
7	5954.500	62.92	68.20	-5.28	43.12	19.80	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

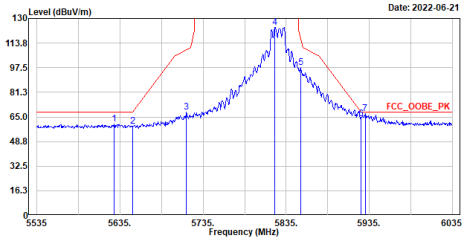
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_a_5825MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5560.500	59.77	68.20	-8.43	41.19	18.58	Peak
2	5650.000	57.91	68.21	-10.30	39.48	18.43	Peak
3	5700.500	60.48	105.34	-44.86	41.67	18.81	Peak
4	5823.500	112.43	------	------	93.22	19.21	Peak
5	5850.000	88.18	122.20	-34.02	68.92	19.26	Peak
6	5925.000	59.80	68.21	-8.41	40.09	19.71	Peak
7	5957.000	62.13	68.20	-6.07	42.32	19.81	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

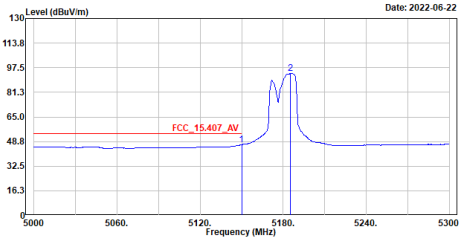
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_a_5825MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5628.000	60.47	68.20	-7.73	41.89	18.58	Peak
2	5650.000	58.99	68.21	-9.22	40.56	18.43	Peak
3	5715.000	68.40	109.40	-41.00	49.52	18.88	Peak
4	5821.500	124.30	------	------	105.09	19.21	Peak
5	5852.500	97.73	116.50	-18.77	78.45	19.28	Peak
6	5925.000	63.88	68.21	-4.33	44.17	19.71	Peak
7	5930.000	67.14	68.20	-1.06	47.41	19.73	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

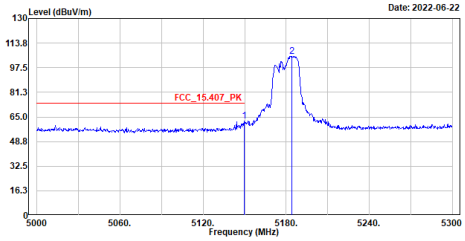
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac20_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5150.000	46.67	54.00	-7.33	29.10	17.57	Average
2	5185.100	93.86	------	------	76.17	17.69	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

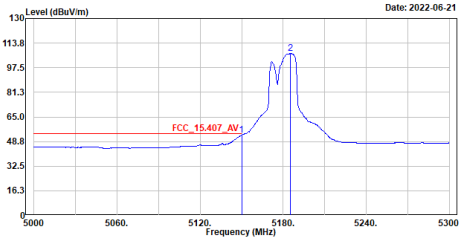
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac20_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5149.700	62.19	74.00	-11.81	44.62	17.57	Peak
2	5183.900	105.23	------	------	87.55	17.68	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

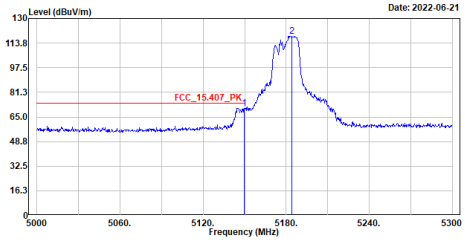
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac20_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5150.000	53.02	54.00	-0.98	35.45	17.57	Average
2	5185.100	106.98	------	------	89.29	17.69	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

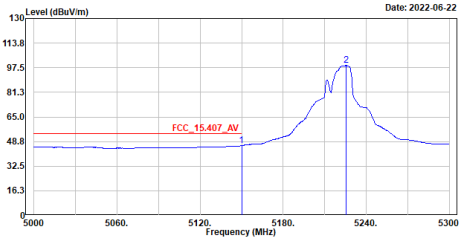
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac20_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5149.700	70.88	74.00	-3.12	53.31	17.57	Peak
2	5184.200	118.45	------	------	100.77	17.68	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

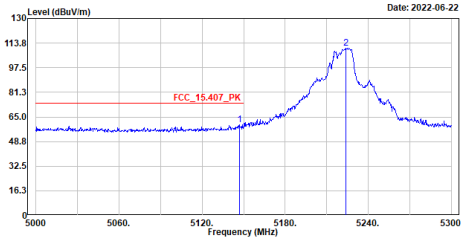
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac20_5220MHz_B1
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5150.000	46.01	54.00	-7.99	28.44	17.57	Average
2	5225.300	99.06	------	------	81.16	17.90	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

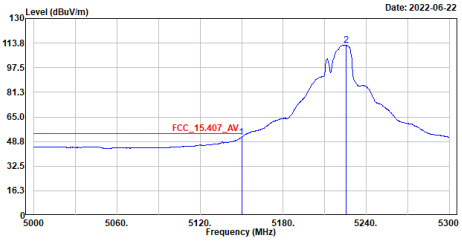
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac20_5220MHz_B1
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5147.000	60.07	74.00	-13.93	42.51	17.56	Peak
2	5223.800	110.57	------	------	92.68	17.89	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

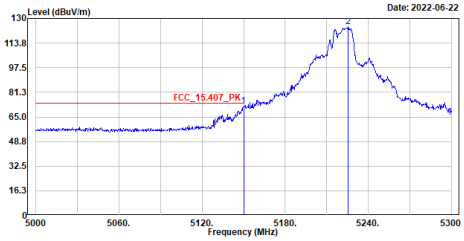
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac20_5220MHz_B1
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5150.000	51.59	54.00	-2.41	34.02	17.57	Average
2	5225.300	112.37	------	------	94.47	17.90	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

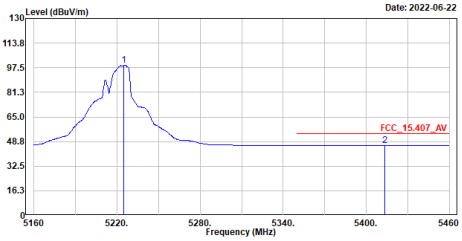
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac20_5220MHz_B1
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5150.000	71.98	74.00	-2.02	54.41	17.57	Peak
2	5225.300	124.47	------	------	106.57	17.90	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

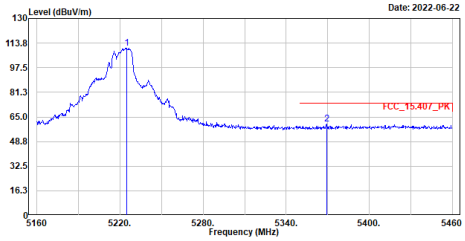
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac20_5220MHz_B2
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5225.100	99.05	------	------	81.15	17.90	Average
2	5413.200	46.35	54.00	-7.65	27.97	18.38	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

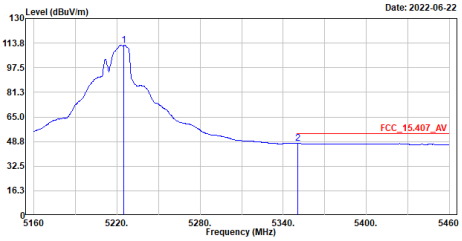
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac20_5220MHz_B2
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5225.100	110.36	------	------	92.46	17.90	Peak
2	5369.100	60.28	74.00	-13.72	42.04	18.24	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

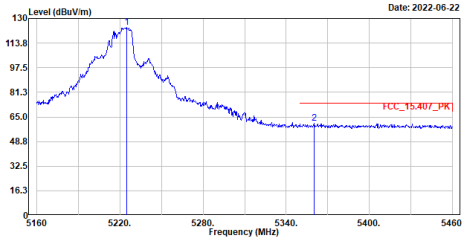
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac20_5220MHz_B2
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5225.100	112.37	------	------	94.47	17.90	Average
2	5350.500	47.42	54.00	-6.58	29.29	18.13	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

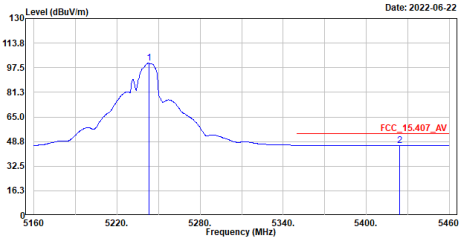
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac20_5220MHz_B2
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5225.100	124.03	------	------	106.13	17.90	Peak
2	5360.400	60.98	74.00	-13.02	42.79	18.19	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

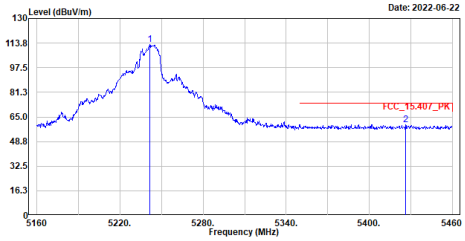
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac20_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5243.100	100.73	------	------	82.73	18.00	Average
2	5424.000	46.31	54.00	-7.69	27.97	18.34	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

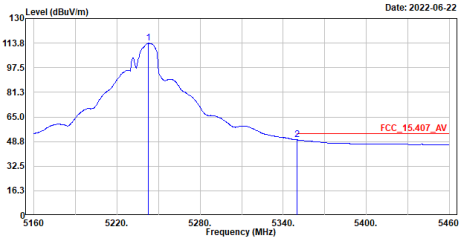
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac20_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5241.600	112.85	------	------	94.86	17.99	Peak
2	5426.100	59.95	74.00	-14.05	41.60	18.35	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

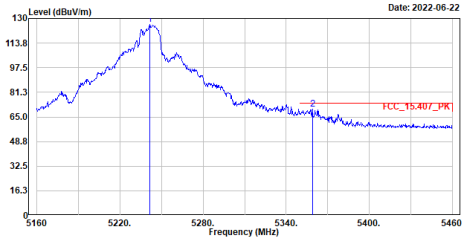
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac20_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5242.800	113.73	------	------	95.73	18.00	Average
2	5350.200	49.91	54.00	-4.09	31.78	18.13	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

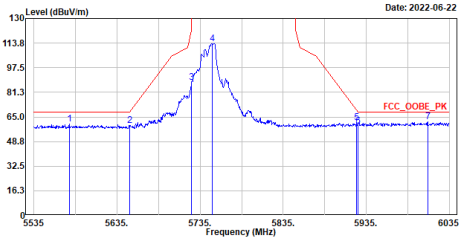
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac20_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5241.600	126.23	------	------	108.24	17.99	Peak
2	5358.900	70.38	74.00	-3.62	52.19	18.19	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

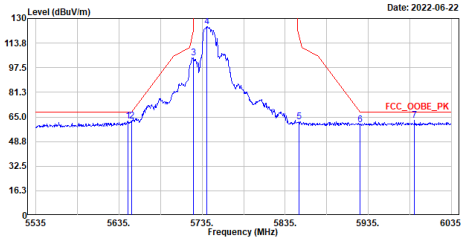
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac20_5745MHz
Test BY :Yeh Lin



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5577.500	60.58	68.20	-7.62	41.93	18.65	Peak
2	5650.000	59.12	68.21	-9.09	40.69	18.43	Peak
3	5725.000	87.62	122.20	-34.58	68.68	18.94	Peak
4	5750.000	113.45	------	------	94.39	19.06	Peak
5	5923.000	61.53	69.69	-8.16	41.82	19.71	Peak
6	5925.000	58.89	68.21	-9.32	39.18	19.71	Peak
7	6009.000	61.83	68.20	-6.37	41.91	19.92	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

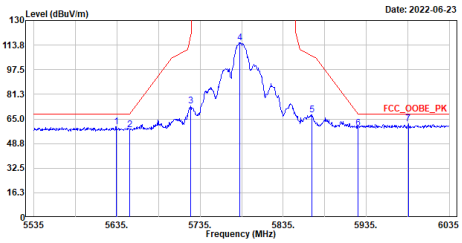
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac20_5745MHz
Test BY :Yeh Lin



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5646.000	62.39	68.20	-5.81	43.93	18.46	Peak
2	5650.000	62.11	68.21	-6.10	43.68	18.43	Peak
3	5725.000	104.12	122.20	-18.08	85.18	18.94	Peak
4	5741.000	124.85	------	------	105.83	19.02	Peak
5	5851.500	61.87	118.78	-56.91	42.59	19.28	Peak
6	5925.000	59.64	68.21	-8.57	39.93	19.71	Peak
7	5990.500	62.93	68.20	-5.27	43.07	19.86	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

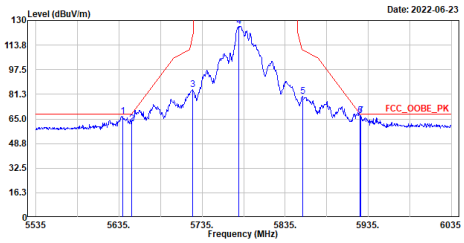
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac20_5785MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5634.000	59.80	68.20	-8.40	41.26	18.54	Peak
2	5650.000	57.70	68.21	-10.51	39.27	18.43	Peak
3	5724.000	73.62	119.92	-46.30	54.68	18.94	Peak
4	5783.000	115.28	------	------	96.16	19.12	Peak
5	5870.000	67.89	106.60	-38.71	48.48	19.41	Peak
6	5925.000	58.97	68.21	-9.24	39.26	19.71	Peak
7	5985.500	61.64	68.20	-6.56	41.79	19.85	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

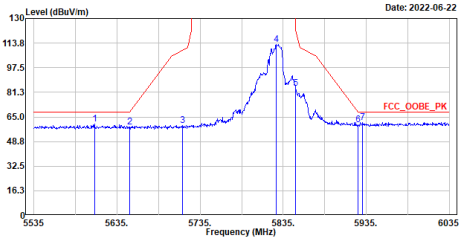
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac20_5785MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5640.000	66.79	68.20	-1.41	48.29	18.50	Peak
2	5650.000	61.86	68.21	-6.35	43.43	18.43	Peak
3	5723.500	84.17	118.78	-34.61	65.24	18.93	Peak
4	5779.500	126.26	------	------	107.14	19.12	Peak
5	5856.000	79.84	110.52	-30.68	60.53	19.31	Peak
6	5925.000	67.04	68.21	-1.17	47.33	19.71	Peak
7	5926.000	67.19	68.20	-1.01	47.48	19.71	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

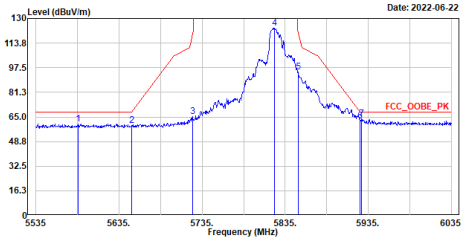
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac20_5825MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5608.000	60.16	68.20	-8.04	41.46	18.70	Peak
2	5650.000	58.16	68.21	-10.05	39.73	18.43	Peak
3	5713.500	59.59	108.98	-49.39	40.72	18.87	Peak
4	5826.500	112.97	------	------	93.75	19.22	Peak
5	5850.000	83.80	122.20	-38.40	64.54	19.26	Peak
6	5925.000	59.96	68.21	-8.25	40.25	19.71	Peak
7	5930.500	61.49	68.20	-6.71	41.76	19.73	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

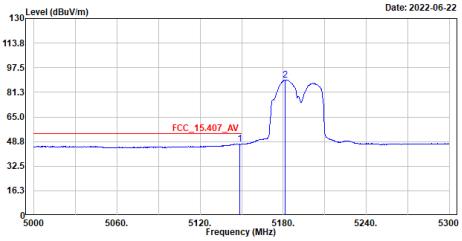
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac20_5825MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5585.500	60.51	68.20	-7.69	41.82	18.69	Peak
2	5650.000	59.21	68.21	-9.00	40.78	18.43	Peak
3	5723.500	65.25	118.78	-53.53	46.32	18.93	Peak
4	5822.000	123.69	------	------	104.48	19.21	Peak
5	5850.500	94.60	121.06	-26.46	75.33	19.27	Peak
6	5925.000	62.48	68.21	-5.73	42.77	19.71	Peak
7	5926.500	63.62	68.20	-4.58	43.91	19.71	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

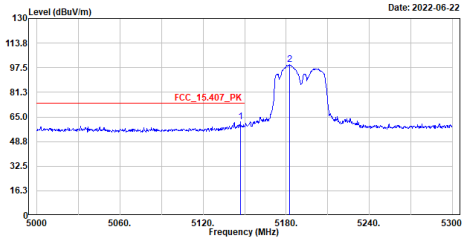
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac40_5190MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5148.500	47.05	54.00	-6.95	29.48	17.57	Average
2	5181.500	89.40	------	------	71.73	17.67	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

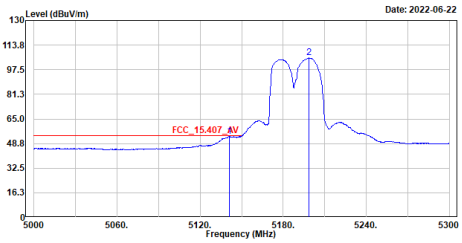
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac40_5190MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5147.000	61.57	74.00	-12.43	44.01	17.56	Peak
2	5182.700	99.35	------	------	81.67	17.68	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

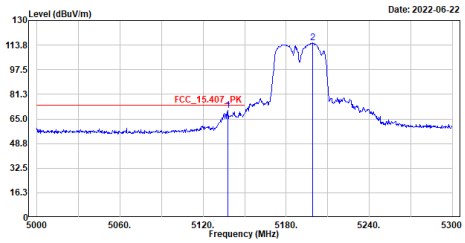
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac40_5190MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5141.000	53.40	54.00	-0.60	35.86	17.54	Average
2	5198.600	105.24	------	------	87.50	17.74	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

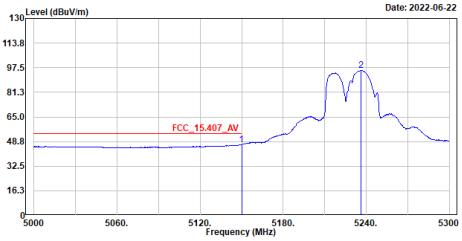
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac40_5190MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5137.700	70.54	74.00	-3.46	53.00	17.54	Peak
2	5199.200	115.20	------	------	97.46	17.74	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

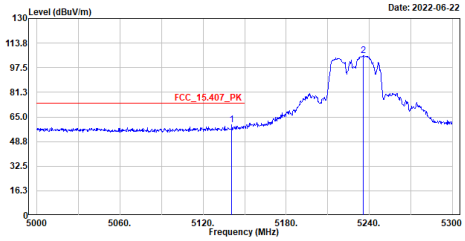
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac40_5230MHz_B1
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5150.000	46.83	54.00	-7.17	29.26	17.57	Average
2	5236.400	95.69	------	------	77.73	17.96	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

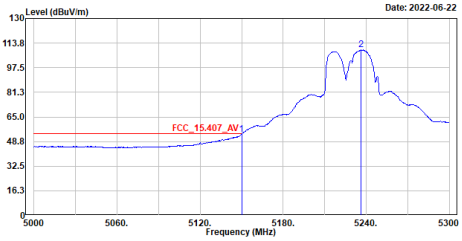
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac40_5230MHz_B1
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5140.700	59.94	74.00	-14.06	42.40	17.54	Peak
2	5235.800	105.57	------	------	87.62	17.95	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

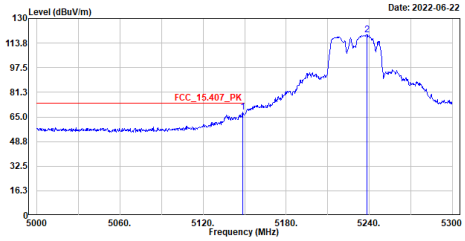
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac40_5230MHz_B1
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5150.000	53.42	54.00	-0.58	35.85	17.57	Average
2	5236.400	109.23	------	------	91.27	17.96	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

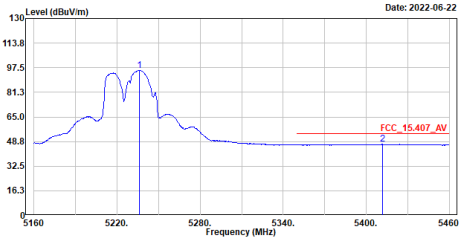
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac40_5230MHz_B1
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5148.500	68.14	74.00	-5.86	50.57	17.57	Peak
2	5238.500	119.16	------	------	101.19	17.97	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

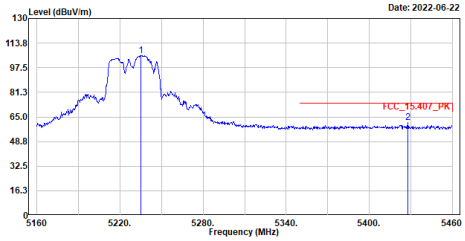
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac40_5230MHz_B2
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5236.200	95.65	------	------	77.70	17.95	Average
2	5411.700	46.90	54.00	-7.10	28.52	18.38	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

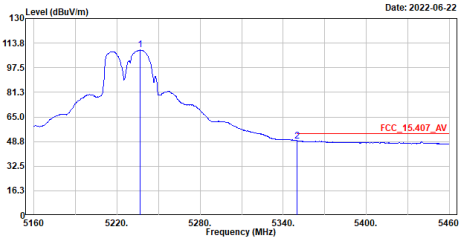
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac40_5230MHz_B2
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5235.300	105.59	------	------	87.64	17.95	Peak
2	5427.900	61.23	74.00	-12.77	42.88	18.35	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

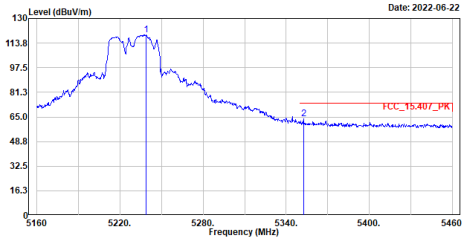
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac40_5230MHz_B2
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5236.800	109.17	------	------	91.21	17.96	Average
2	5350.200	49.29	54.00	-4.71	31.16	18.13	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

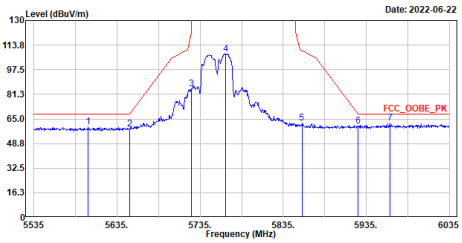
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac40_5230MHz_B2
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5238.900	119.06	------	------	101.08	17.98	Peak
2	5352.600	63.54	74.00	-10.46	45.40	18.14	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

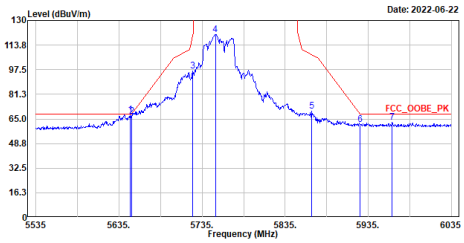
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac40_5755MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5600.500	59.74	68.20	-8.46	41.00	18.74	Peak
2	5650.000	58.44	68.21	-9.77	40.01	18.43	Peak
3	5725.000	84.93	122.20	-37.27	65.99	18.94	Peak
4	5765.500	107.95	------	------	88.86	19.09	Peak
5	5857.500	62.17	110.10	-47.93	42.86	19.31	Peak
6	5925.000	60.47	68.21	-7.74	40.76	19.71	Peak
7	5963.500	62.43	68.20	-5.77	42.61	19.82	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

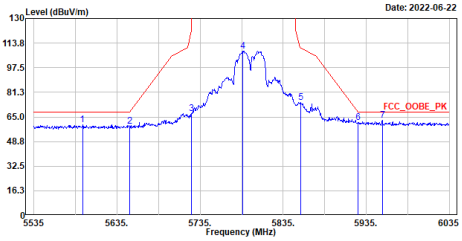
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac40_5755MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5648.500	67.65	68.20	-0.55	49.21	18.44	Peak
2	5650.000	66.60	68.21	-1.61	48.17	18.43	Peak
3	5724.000	96.51	119.92	-23.41	77.57	18.94	Peak
4	5751.000	120.66	------	------	101.59	19.07	Peak
5	5866.500	70.11	107.58	-37.47	50.72	19.39	Peak
6	5925.000	61.48	68.21	-6.73	41.77	19.71	Peak
7	5964.000	62.62	68.20	-5.58	42.80	19.82	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

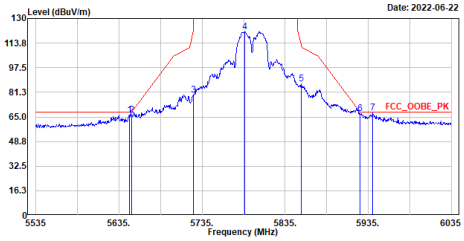
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac40_5795MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5593.500	59.63	68.20	-8.57	40.92	18.71	Peak
2	5650.000	58.81	68.21	-9.40	40.38	18.43	Peak
3	5724.500	67.28	121.06	-53.78	48.34	18.94	Peak
4	5786.500	108.60	------	------	89.47	19.13	Peak
5	5856.000	74.67	110.52	-35.85	55.36	19.31	Peak
6	5925.000	61.26	68.21	-6.95	41.55	19.71	Peak
7	5954.500	62.66	68.20	-5.54	42.86	19.80	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

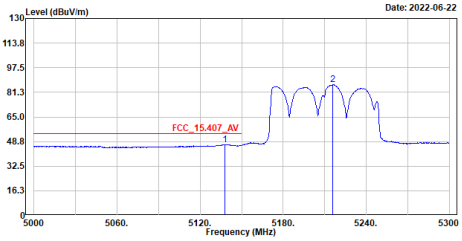
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac40_5795MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5648.000	66.01	68.20	-2.19	47.56	18.45	Peak
2	5650.000	66.19	68.21	-2.02	47.76	18.43	Peak
3	5725.000	79.38	122.20	-42.82	60.44	18.94	Peak
4	5786.500	121.27	------	------	102.14	19.13	Peak
5	5854.000	86.81	113.08	-26.27	67.52	19.29	Peak
6	5925.000	67.17	68.21	-1.04	47.46	19.71	Peak
7	5940.500	67.49	68.20	-0.71	47.72	19.77	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

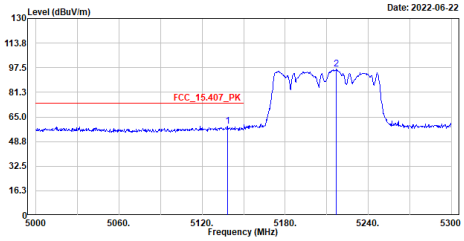
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac80_5210MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5137.700	46.74	54.00	-7.26	29.20	17.54	Average
2	5215.700	86.36	------	------	68.52	17.84	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

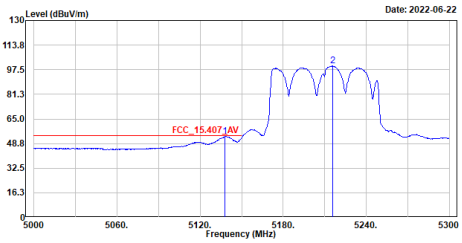
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac80_5210MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5138.600	58.95	74.00	-15.05	41.41	17.54	Peak
2	5216.900	96.58	------	------	78.73	17.85	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

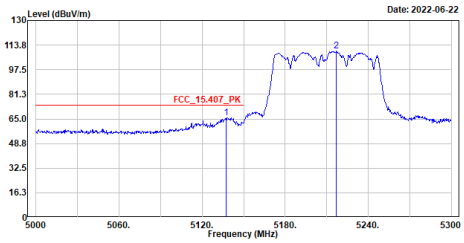
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac80_5210MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5137.700	53.46	54.00	-0.54	35.92	17.54	Average
2	5216.000	99.91	------	------	82.07	17.84	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

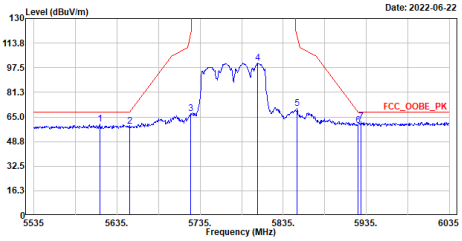
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac80_5210MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5137.400	65.85	74.00	-8.15	48.32	17.53	Peak
2	5216.900	109.85	------	------	92.00	17.85	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

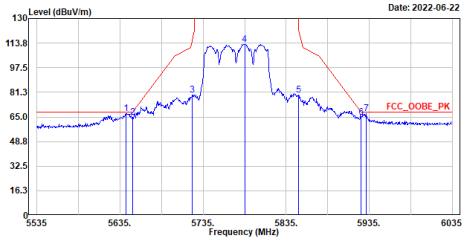
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_ac80_5775MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5614.500	60.54	68.20	-7.66	41.89	18.65	Peak
2	5650.000	58.63	68.21	-9.58	40.20	18.43	Peak
3	5724.000	67.36	119.92	-52.56	48.42	18.94	Peak
4	5804.500	100.49	------	------	81.32	19.17	Peak
5	5852.000	70.46	117.64	-47.18	51.18	19.28	Peak
6	5925.000	59.14	68.21	-9.07	39.43	19.71	Peak
7	5929.000	61.74	68.20	-6.46	42.01	19.73	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_ac80_5775MHz
Test BY :Jing Chang

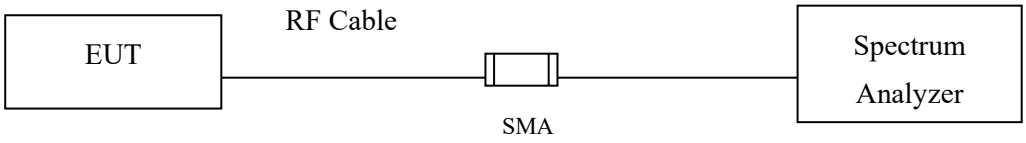


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5642.500	67.44	68.20	-0.76	48.95	18.49	Peak
2	5650.000	64.71	68.21	-3.50	46.28	18.43	Peak
3	5722.000	79.71	115.36	-35.65	60.78	18.93	Peak
4	5785.000	113.06	------	------	93.93	19.13	Peak
5	5850.000	79.58	122.20	-42.62	60.32	19.26	Peak
6	5925.000	64.65	68.21	-3.56	44.94	19.71	Peak
7	5931.000	67.25	68.20	-0.95	47.52	19.73	Peak

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

7. Occupied Bandwidth

7.1. Test Setup



7.2. Limits

For the 5.725-5.850 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

7.3. Test Procedure

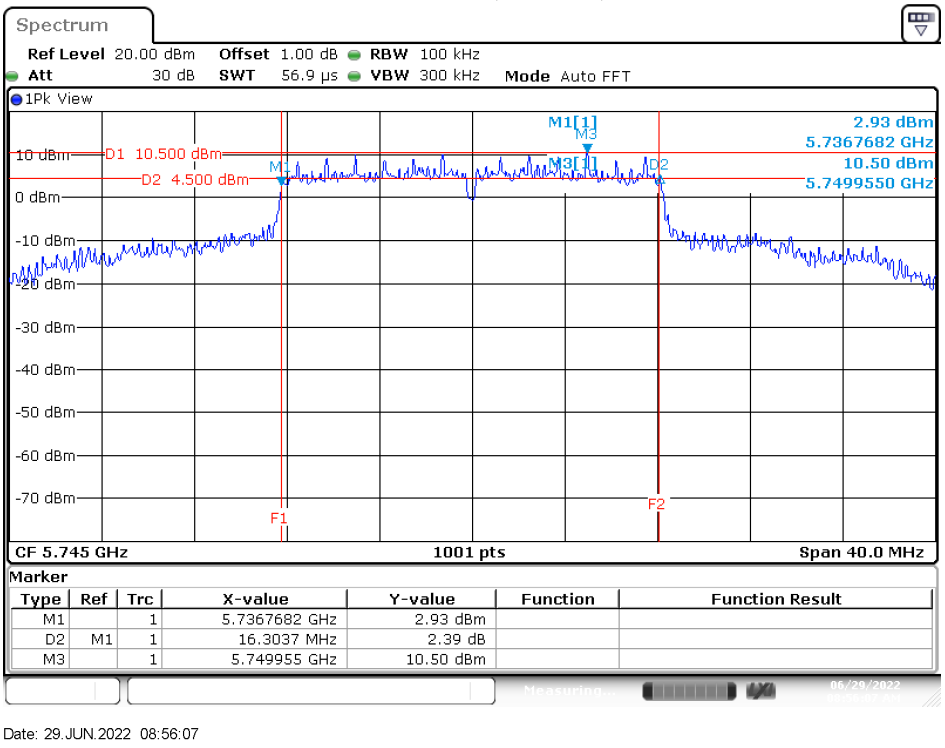
The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

7.4. Test Result of Occupied Bandwidth

Product : Secured Network Extension Device
Test Item : Occupied Bandwidth Data
Test Mode : Transmit (802.11a-CDD)
Test Date : 2022/06/29

Channel No.	Chain	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	A	5745	16303	>500	Pass
157	A	5785	16303	>500	Pass
165	A	5825	16303	>500	Pass
149	B	5745	16303	>500	Pass
157	B	5785	16303	>500	Pass
165	B	5825	16303	>500	Pass

Channel 149 (Chain A):

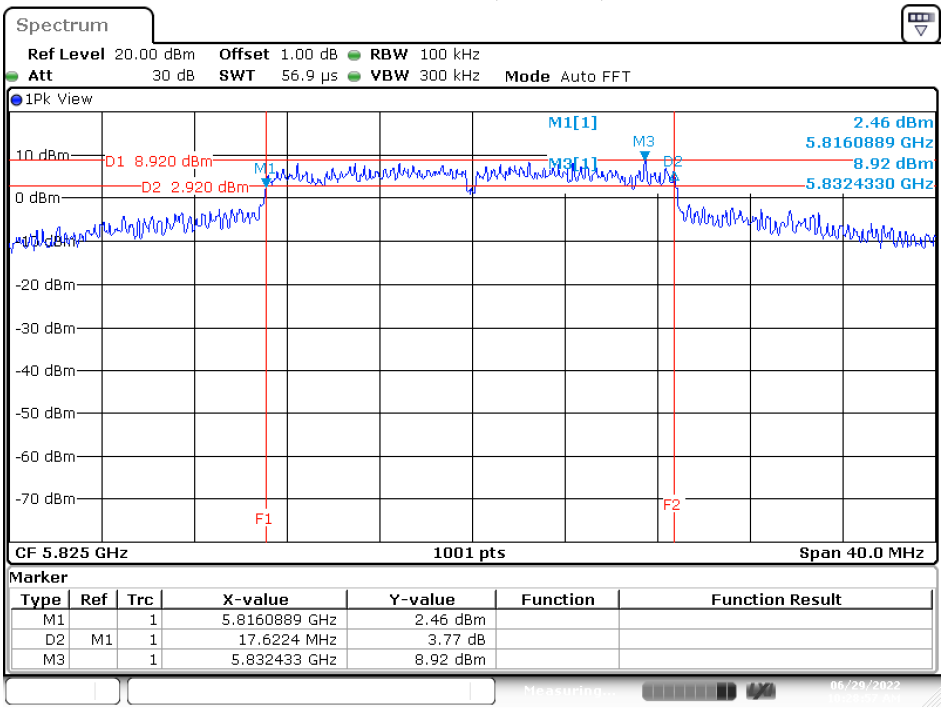


Date: 29.JUN.2022 08:56:07

Product : Secured Network Extension Device
Test Item : Occupied Bandwidth Data
Test Mode : Transmit (802.11ac-20 MHz-CDD)
Test Date : 2022/06/29

Channel No.	Chain	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	A	5745	17542	>500	Pass
157	A	5785	17542	>500	Pass
165	A	5825	17542	>500	Pass
149	B	5745	17582	>500	Pass
157	B	5785	17542	>500	Pass
165	B	5825	17622	>500	Pass

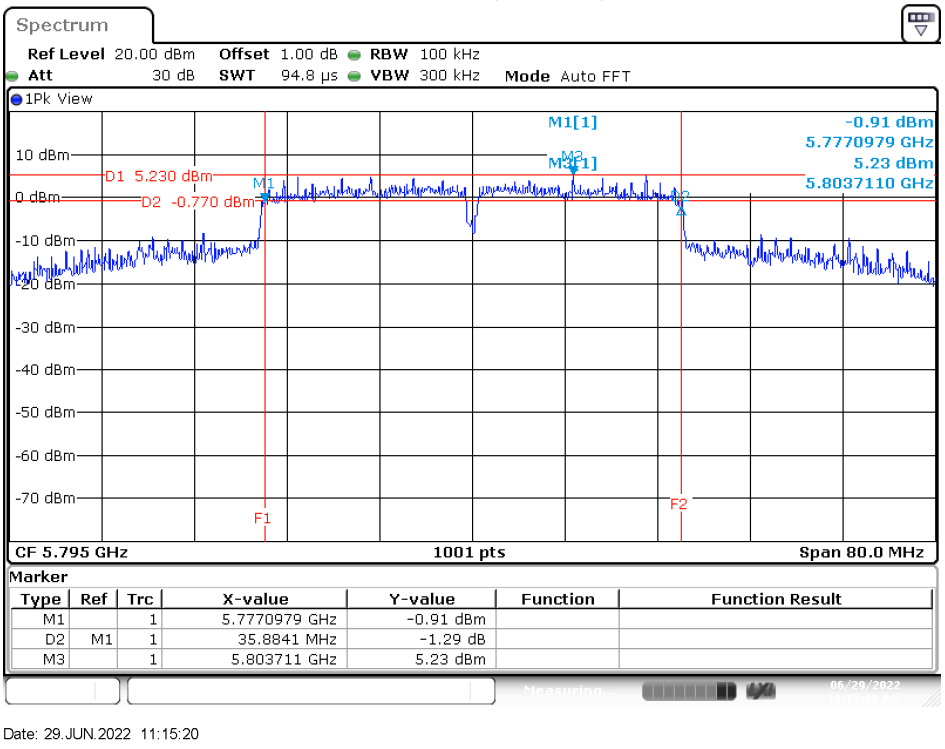
Channel 165 (Chain B):



Product : Secured Network Extension Device
Test Item : Occupied Bandwidth Data
Test Mode : Transmit (802.11ac-40 MHz-CDD)
Test Date : 2022/06/29

Channel No.	Chain	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	A	5755	35084	>500	Pass
159	A	5795	35084	>500	Pass
151	B	5755	35084	>500	Pass
159	B	5795	35884	>500	Pass

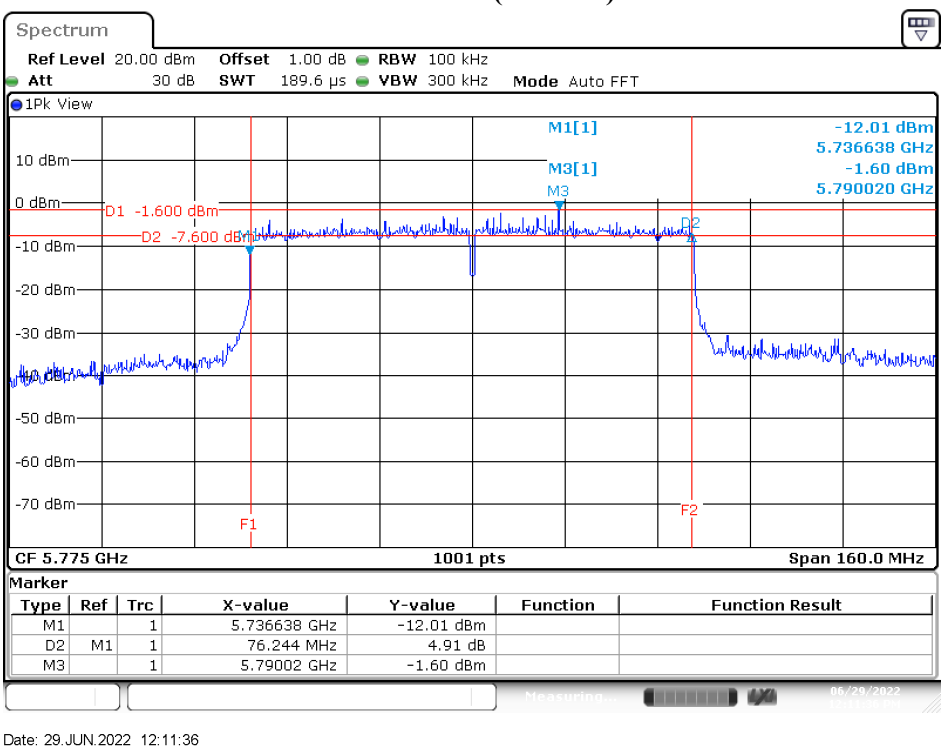
Channel 159 (Chain B):



Product : Secured Network Extension Device
Test Item : Occupied Bandwidth Data
Test Mode : Transmit (802.11ac-80 MHz-CDD)
Test Date : 2022/06/29

Channel No.	Chain	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
155	A	5775	75924	>500	Pass
155	B	5775	76244	>500	Pass

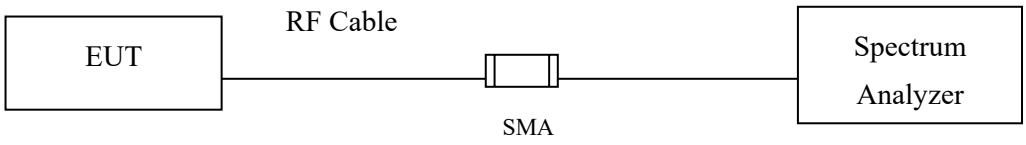
Channel 155 (Chain B)



Date: 29.JUN.2022 12:11:36

8. Duty Cycle

8.1. Test Setup



8.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to U-NII test procedure of KDB789033 for compliance to FCC 47CFR 15.407 requirements.

8.3. Test Result of Duty Cycle

Product : Secured Network Extension Device
Test Item : Duty Cycle
Test Mode : Transmit-CDD mode

Duty Cycle Formula:

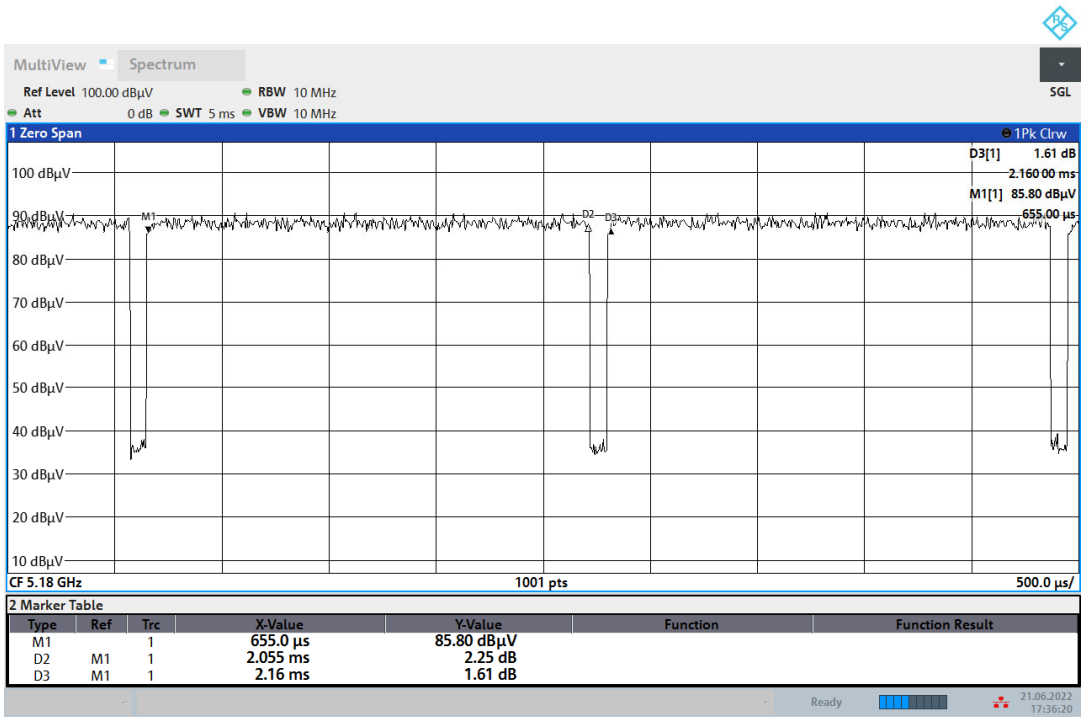
Duty Cycle = Ton / (Ton + Toff)

Duty Factor = 10 Log (1/Duty Cycle)

Results:

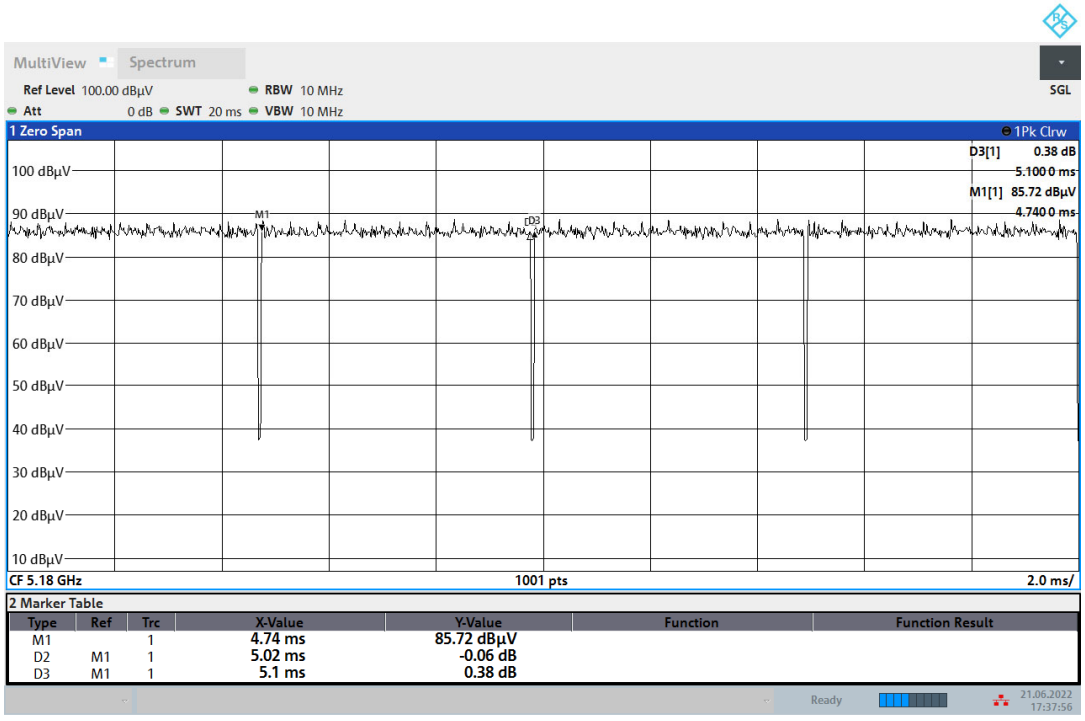
5 GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11a	2.0550	2.1600	95.14	0.22
802.11ac-20 MHz	5.0500	5.1000	99.02	0.04
802.11ac-40 MHz	2.4200	2.5200	96.03	0.18
802.11ac-80 MHz	1.1200	1.2300	91.06	0.41

802.11a



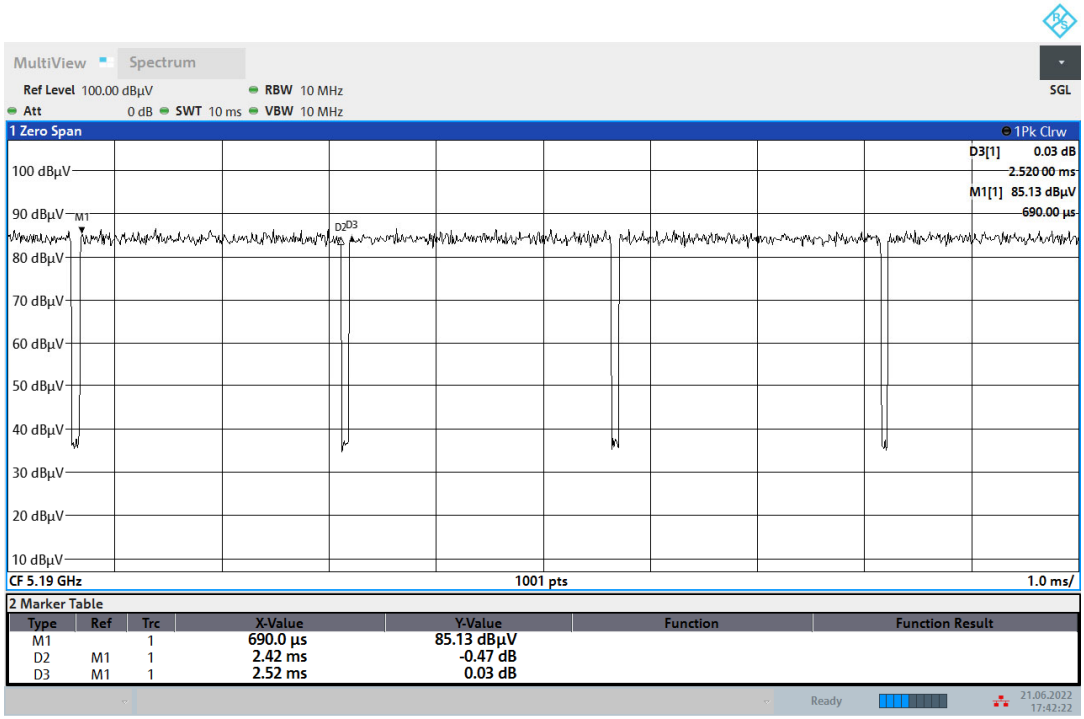
17:36:21 21.06.2022

802.11ac20



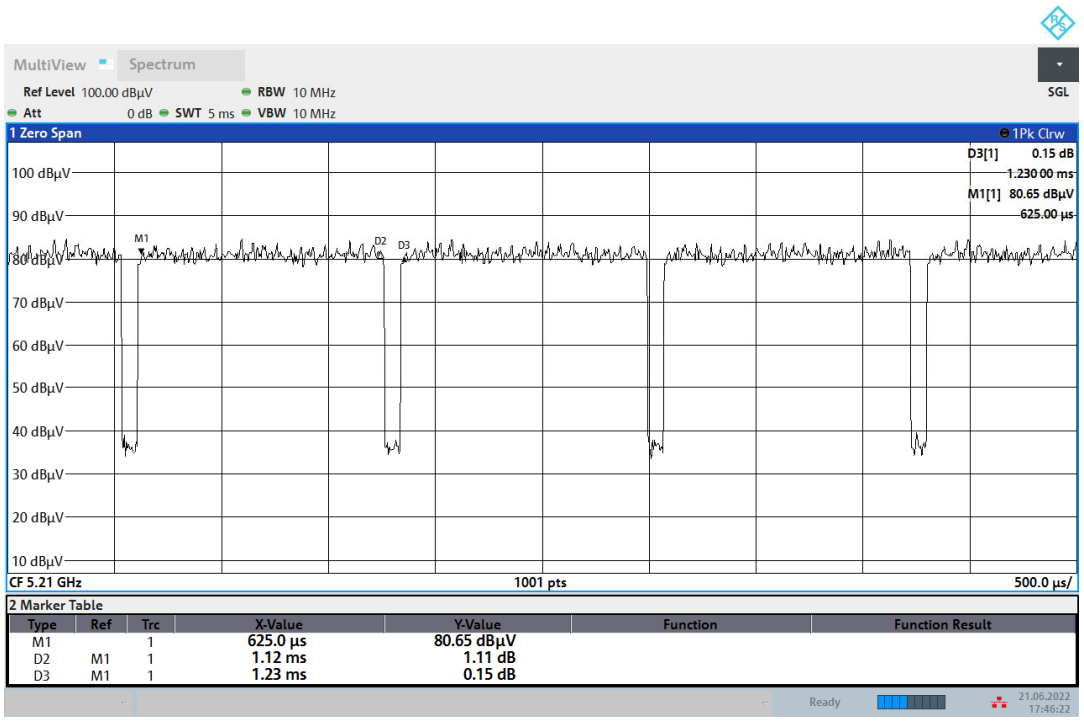
17:37:57 21.06.2022

802.11ac40



17:42:23 21.06.2022

802.11ac80



17:46:23 21.06.2022